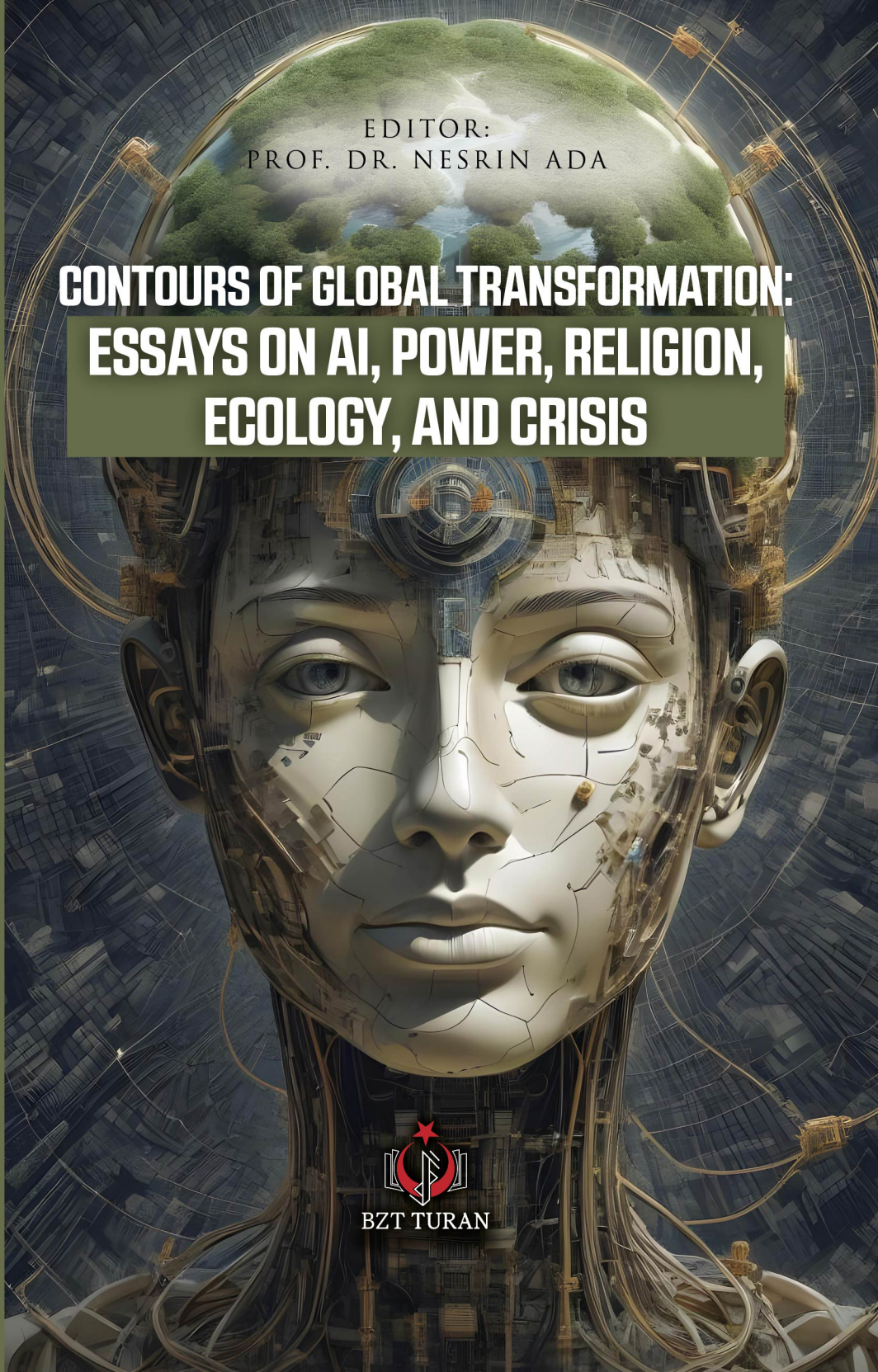
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CONTENTS

Preface

The 21st century has ushered in a wave of rapid transformations—technological, geopolitical, ecological, and socio-economic—that are reshaping human society in profound ways. To comprehend the forces driving global change in this complex environment, an interdisciplinary approach is imperative, combining insights from economics, politics, religion, science, and sustainability.

This book presents a curated collection of five distinct yet interconnected essays, each illuminating a crucial theme that shapes our modern world. From artificial intelligence to public health, from China's extraordinary economic rise to Turkey's evolving religious governance, and from ecological democracy to pandemic economics, these chapters are designed to incite thought, inspire dialogue, and deepen understanding.

The first chapter, "Sectoral Effects of Artificial Intelligence," confidently explores how AI is revolutionizing various industries, transforming labor markets, production processes, and institutional structures. By examining the uneven impacts of AI across sectors, this chapter compels readers to confront the opportunities and challenges that digital transformation presents.

The second chapter, "The Secret of China's Rapid Rise in the 21st Century," decisively analyzes the multifaceted drivers behind China's impressive economic and geopolitical ascent. It dissects the strategies, reforms, and global dynamics that have positioned China as a central player on the world stage.

In the third chapter, "Islamization of Turkey and the Role of the Directorate of Religious Affairs," we focus on the critical intersection of religion and state in contemporary Turkish society. This article rigorously examines how religious institutions have been instrumental in shaping national identity and policy, particularly in recent decades.

The fourth chapter, "Democracy and Ecology Interaction through Quintuple Helix Architecture," introduces an innovative theoretical framework that establishes a clear link between democratic governance and ecological

sustainability. Utilizing the Quintuple Helix model that integrates academia, industry, government, civil society, and the environment, this chapter offers a visionary path toward holistic and inclusive innovation.

Finally, "The Economics of Pandemics and the Economic Impacts of Infectious Diseases: A Case Study on COVID-19" provides a thorough examination of the extensive economic ramifications of pandemics. Leveraging the COVID-19 crisis as a lens, this chapter investigates systemic vulnerabilities, fiscal responses, and the essential need for resilience planning in public policy.

Together, these works embody a shared ambition: to confront and tackle the defining questions of our time through critical inquiry and scholarly rigor. Whether you are a student, researcher, policymaker, or a curious global citizen, this volume is designed to inform, challenge, and inspire.

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CHAPTER 1

THE ECONOMICS OF PANDEMICS AND THE ECONOMIC IMPACTS OF INFECTIOUS DISEASES: A CASE STUDY ON COVID-19

Sümeyye GÖKÇENOĞLU[1]

Abstract

Pandemic diseases are phenomena that have profoundly affected societies throughout history, leading to transformations across a broad spectrum, from healthcare systems to economies. These diseases do not only impact the health of individuals or societies, but also significantly affect global trade, employment, and macroeconomic balances. Throughout historical processes, particularly in the 20th and 21st centuries, pandemics such as influenza outbreaks, Ebola, SARS, MERS, and COVID-19 have caused the deaths of many individuals, seriously disrupted the global economy, and led to significant economic losses. This study examines pandemics that have profoundly impacted human history. After providing an overview of their historical backgrounds, the economic effects of the selected pandemics were analyzed. Additionally, the COVID-19 pandemic was specifically addressed within the context of Turkey, using economic indicators for further explanation. Based on the results obtained, it can be concluded that infectious diseases, regardless of the historical period in which they arise, have caused negative effects on both society and the economy.

Keywords: Pandemic, Economy, COVID-19

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Introduction

Certain microorganisms, which transcend the boundaries of human history, have caused various diseases throughout time (Yurdakul, 2015, p. 1). With the rapid spread of these diseases within human populations, the mass mortality of individuals and the inevitable transformation of some political and social structures emerge as undeniable realities. Therefore, pandemics are phenomena that have profoundly impacted societies throughout history, causing transformations across a wide range of sectors, from healthcare systems to economies. These diseases not only affect the health of individuals or communities but also have a significant impact on global trade, employment, and macroeconomic balances. Historical events, particularly the influenza pandemics of the 20th and 21st centuries, as well as outbreaks such as Ebola, SARS, MERS, and COVID-19, have resulted in numerous deaths, severely shaken the global economy, and led to substantial economic losses. Such pandemics create imbalances in production and consumption in world trade and cause disruptions in supply chains. In addition, governments and some international organizations are compelled to make significant economic expenditures in order to combat these pandemics.

When examining country profiles, it becomes evident that the economic impacts of pandemics are not confined solely to short-term crises. Over the long term, they lead to structural changes that can result in a decline in employment rates, income inequality, an increase in government debt, and the potential for major economic crises.

In the long term, pandemics can lead to structural changes that result in a decline in employment rates, income inequality, an increase in government debt, and the potential for major economic crises. Particularly in less developed and developing countries, pandemics tend to have more devastating economic effects. International financial institutions such as the World Bank and the International Monetary Fund (IMF) propose various fiscal and monetary policies to stimulate economies during pandemic periods. For instance, during the COVID-19 pandemic, the IMF implemented a $650 billion aid package for its 191 member countries (EuroNews, 2021). However, policies aimed at mitigating the effects of pandemics may sometimes be insufficient, potentially leading to long-term economic stagnation.

Figure 1: *Endemic, epidemic, and pandemic (Ural, 2021, p.4).*

It is well-known that throughout human history, pandemics have had a significant impact on the population of specific geographic regions. For instance, the "Plague of Athens" that emerged in 436 B.C. and reduced the city's population by 30 to 35%, the disasters of the 17th century, which included diseases such as typhus, typhoid fever, malaria, dysentery, and plague, the severe yellow fever epidemic at the end of the 18th century, the fourth cholera outbreak that began in 1863, the Spanish flu in 1918, and the coronavirus pandemic that emerged in 2019 are some examples (Pala, 2020). In this context, the global pandemics (pandemics) discussed in this study are listed in the table below.

Table 1: *Global Pandemics Throughout History (Türk et. al. 2020, pp. 614-615; Gelaw et. al. 2020, p. 257)*

Time period	*Pandemic*	*Estimated death toll*
165-180	Antonine (Antoninus) plague	5 million
541-542	The first plague outbreak (Justinian plague)	30-50 million
735-737	Japanese smallpox outbreak	1 million
1346-1353	Black death	200 million
1520-	Smallpox epidemic	56 million
1629-1631	Italian plague	1 million
1665	Great Plague of London	100.000
1817-1923	Cholera pandemics (1-6)	> 1 million
1885	Third plague	12 million
End of the 1800s	Yellow fever outbreak	100-150 bin
1889-1890	Russian flu	1 million
1918-1920	Spanish flu	40-50 million
1957-1958	Asian flu	1.1 million
1968-1970	Hong kong flu	1 million
1981 - present	Hıv/aıds	>35 million
2002-2004	SARS	770
2009-2010	Swine flu	200.000
2014-2016	Ebola	11.000
2015 - present	MERS	
2019 - present	COVID-19	>15 million

Antonine Plague (165-180)

The first infectious disease recorded in historical sources is the Antonine Plague (Türk et al., 2020, pp. 614-615). It emerged between 165 and 180 AD, during the return of Roman soldiers from their campaigns, and lasted for approximately 23 years. Although the exact nature of the disease has not been conclusively determined, it is believed to have been either a form of dysentery, bubonic plague, or smallpox. The epidemic, named after Emperor Marcus Aurelius Antoninus, likely originated in China and spread along the Silk Road. It had a profound impact on regions including Asia Minor, Egypt, Greece, and Italy, decimating about a third of the populations of these areas (Aytaçlar, 2021).

The epidemic, which caused the deaths of 2,000 people per day, led to the death of approximately 5 million individuals. Confronted with significant military losses and a rapidly declining population, the Roman Empire, which was a small-scale trade center dependent on agricultural commerce and vital to sustaining the population and legions of the Mediterranean region, faced immense challenges (Türk et al., 2020, p. 615). Due to its status as a major trade hub, the epidemic also spread to regions outside the Roman borders. During this period, the labor shortage caused by the high death toll negatively impacted both urban economic life and agricultural activities in rural areas. Interregional trade mobility was greatly disrupted (Sayar, 2020, p. 24), and there was an expansion in the types of agricultural leasing contracts within the Empire. As a result of the epidemic, there was a 40% decrease in the Empire's commercial documents, and agricultural taxes in significant economic and cultural centers, such as the Nile Valley, increased. These increases prompted migration from rural areas to cities and led to a reduction in the production of key agricultural products such as grain, wine, and oil. The rapid growth of the urban population increased demand for agricultural products and spurred the search for new employment opportunities. In regions like Damascus and Antioch, with which the Empire had commercial ties, trade nearly came to a halt (Sabbatini and Sirio, 2009, p. 269, as cited in Türk et al., 2020, p. 615).

It is estimated that Lucius Verus died from this disease in 169, and Marcus Aurelius in 180. The epidemic, which disrupted the Empire's army and economy, is considered one of the significant factors in the beginning of Rome's decline (Aytaçlar, 2021).

The First Plague (Justinian) Outbreak (541-542)

One of the largest plague outbreaks in history was the Justinian Plague, named after Byzantine Emperor Justinian I. The plague initially appeared in the empire's outer provinces and, within a year, reached the capital, Constantinople. The outbreak's origin can be traced to Egypt, with the primary mode of transmission being grain ships sent as tribute to the capital and the rats traveling in carts. The grain stored in large warehouses provided an ideal environment for rats and fleas, accelerating their reproduction. The rats, which could not travel more than 200 meters from their breeding sites, were transported across the empire aboard grain ships. Additionally, the climate crisis of the time, which led to cooler than usual temperatures, affected crop harvests and caused food shortages, leading to mass migration in the region. Migrants were infected with the plague, which facilitated its spread to various parts of the empire (Horgan, trans. Çil, 2014).

In addition to all these factors, wars and trade accelerated the spread of the disease across the Byzantine Empire. The capital's position between the Black Sea and the Aegean Sea made the empire a significant crossroads for trade routes connecting China, the Middle East, and North Africa. Following these trade routes, the plague spread from Ethiopia to Egypt and then to the Mediterranean region. The plague did not spread to Northern Europe or rural areas but was particularly prevalent in coastal settlements. The epidemic lasted approximately four months in the capital, Constantinople, but with the last reported outbreak in 750 AD, it can be said that the plague persisted for nearly three centuries.

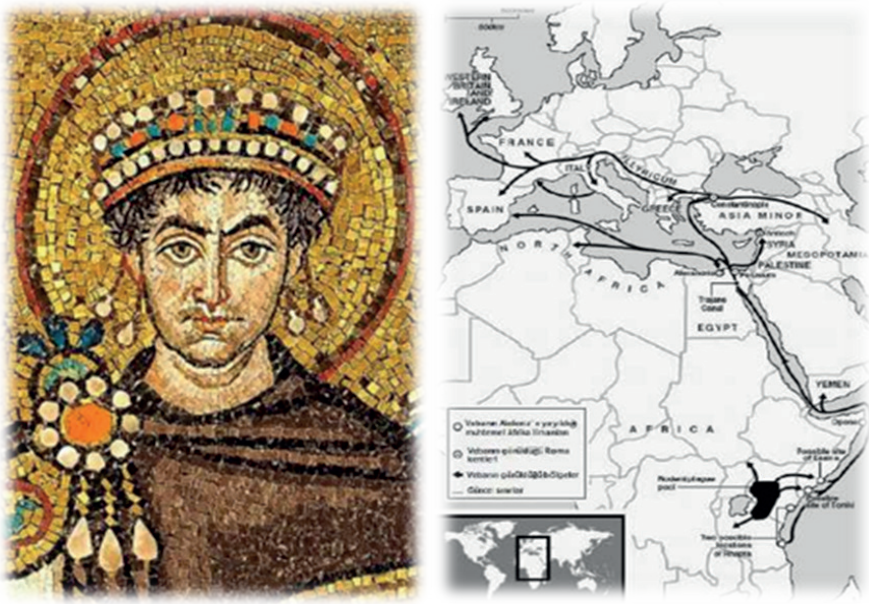


Figure 2: The first justinian and the regions affected by the justinian plague (Ural, 2021).

The Justinian Plague caused significant political and economic weakening of the Byzantine Empire. As the disease spread across Mediterranean countries, the Empire found it increasingly difficult to resist its enemies. The reduction in the Byzantine army and its inability to counter external forces were a result of the losses within the military. Another contributing factor to the army's defeat was the insufficient training of volunteers. The population decline not only weakened the army and the empire but also led to the collapse and even the dissolution of the empire's economic and administrative structures (Horgan, trans. Çil, 2014). The financial structure of the Empire, which was based on the taxation of land and individuals, faced significant disruptions as a result of the deaths of many citizens, leading to negative impacts on the agricultural sector. Due to the massive loss of the population, taxation was left to a small portion of the remaining citizens, which in turn resulted in financial crises. The famine, caused by the decline in production, also contributed to economic instability (Türk et al., 2020, p. 615). Furthermore, trade along the Silk Road and the Spice Route came to a halt. The reduction in the working population led to the cessation of production and related trade activities, depletion of food reserves, and deaths from starvation (Ural, 2021).

Japanese Smallpox Outbreak (735-737)

The Japanese Smallpox outbreak, which began in Tokyo in 735 AD, resulted in the death of approximately 1 million people within two years. The epidemic caused the loss of a third of the country's population, with the majority of the victims being children, although there was also a significant number of deaths among the aristocracy (Tavukcu, 2020). The outbreak, which started on the southern island of Kyushu, spread across Japan, reaching as far as the Nara palace on the island of Honshu in the Kansai region, effectively affecting nearly every corner of the country.

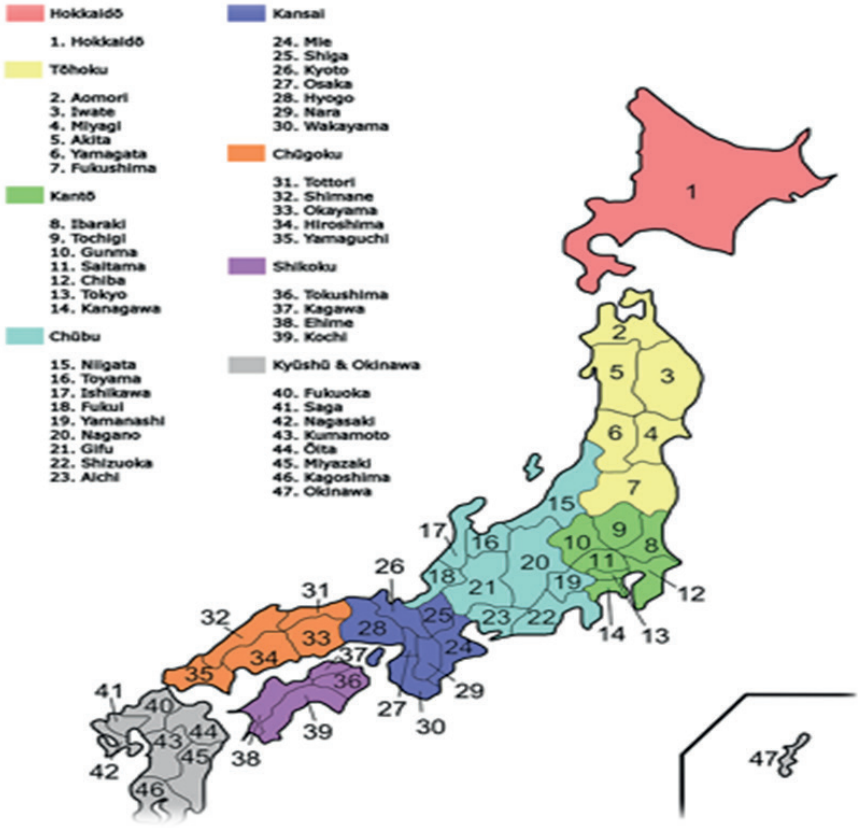


Figure 3: Regions and prefectures of japan (Rod-ari, n.d., p. 45)

It is known that the infection was brought to the Korean Peninsula by a Japanese fisherman who contracted the disease. The outbreak in virgin lands resulted in a decrease in agricultural productivity and famine. During this

period, drinking water was banned in the country, and recommendations were made to consume boiled rhubarb and apply silkworm cocoons to boils. Although the disease was suppressed through various measures like these, the country's economy came to a standstill. In 741, Emperor Shomu ensured that the palace's resources were placed under the control of the Buddhist temples (kokobunji) in the province, which led to economic revival. According to Shomu, this situation increased interaction between the government and religious authorities and enabled temples to become important commercial centers for the public. With a population that was increasingly accepting of Buddhism, the government saw an opportunity to both solidify political control and engage in efforts to gain Buddhist merit across the country. Through these efforts, the smallpox epidemic was subdued, and larger disasters were prevented (Rod-ari, n.d., 46-47). However, as a result of this dual contact, the temple established by the Emperor in Kinai, the richest and most financially important region of the country (the most developed region of Japan), caused ecological degradation. This degradation, which led to economic impacts, resulted in treeless mountains, less rainfall, and more soil erosion in the region. Fleeing from the effects of the dry climate, the population began migrating to other areas. During this period, the copper coins produced lost their value, causing significant damage to the national economy (Türk et al., 2020, p. 616).

Italian Plague (1629-1631)

The Italian Plague, known as the Black Death, originated in the Middle Ages. Starting in the southwestern part of Asia, the plague spread to Europe, causing the death of nearly a quarter of the world's population. The outbreak of the plague was triggered by the Thirty Years' War. German and French soldiers, who carried the disease, entered Italy from the northern borders, bringing the infection with them. Although soldiers from the Republic of Venice withdrew from northern Italy, they had already introduced the disease into the country. From the moment the disease was first observed, those infected were isolated in designated areas. Despite various measures, such as the suspension of port trade and the prohibition of German soldiers' entry, the plague reached the city of Milan in 1629. In Milan, two waves of plague occurred within two years, leading to the deaths of approximately 60,000 people out of a population of 130,000. One of the main reasons for the widespread devastation of the plague was the hosting of carnivals, with high levels of participation (Al Arabiya Independent, trans. İbeş, 2020).

After reaching Milan, the plague also spread to Venice, causing the death of at least 230,000 people within two years and wiping out a third of the

country's population. With the declining population, there were reductions in supply and increases in wages, leading to an economic collapse. The Venetian Republic, a major power in the Mediterranean, and the Genoese Republic, an important financial center during the 16th and 17th centuries, both lost their commercial influence (Türk et al., 2020, p. 616).

Cholera Pandemics 1-6 (1817-1923)

Cholera is one of the most significant infectious diseases of the 19th century. It emerged during different periods and affected various regions, leading to a total of seven pandemics and causing the death of many people. Although cholera first caused the death of 20,000 soldiers in India in 1503, it became a global pandemic in 1817, marking its place in history (Ural, 2021). The primary cause of cholera outbreaks is contaminated drinking water.

The first cholera outbreak in 1817 began around the Ganges Delta, eventually crossing the Bay of Bengal and reaching Calcutta. The disease rapidly spread across much of the continent, reaching the western coasts in Bombay by 1818. Cholera, which nearly engulfed the Asian countries, also spread to the Middle East, East Africa, Southeast Asia, and the Mediterranean coasts, causing hundreds of thousands of deaths (Demir, 2023). The second outbreak started in India and extended by 1830 to Finland, Poland, and Russia. The third cholera pandemic, which is known for its particularly high fatality rate, also spread to Finland, Poland, and Russia in 1830, causing substantial deaths. During the third cholera pandemic, it was determined that the disease was caused by contaminated water, and necessary preventive measures were identified to control the outbreak (Erdem, n.d., p. 10).

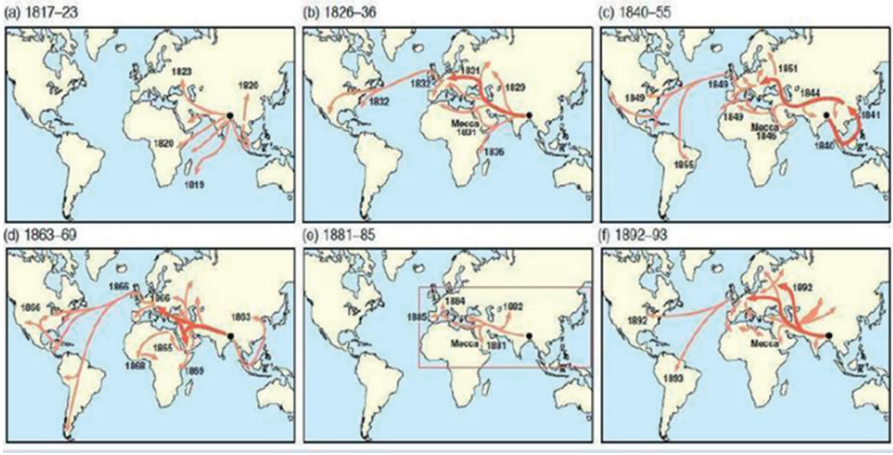


Figure 4: Cholera pandemics (1-6) (1817-1923) (Ural, 2021)

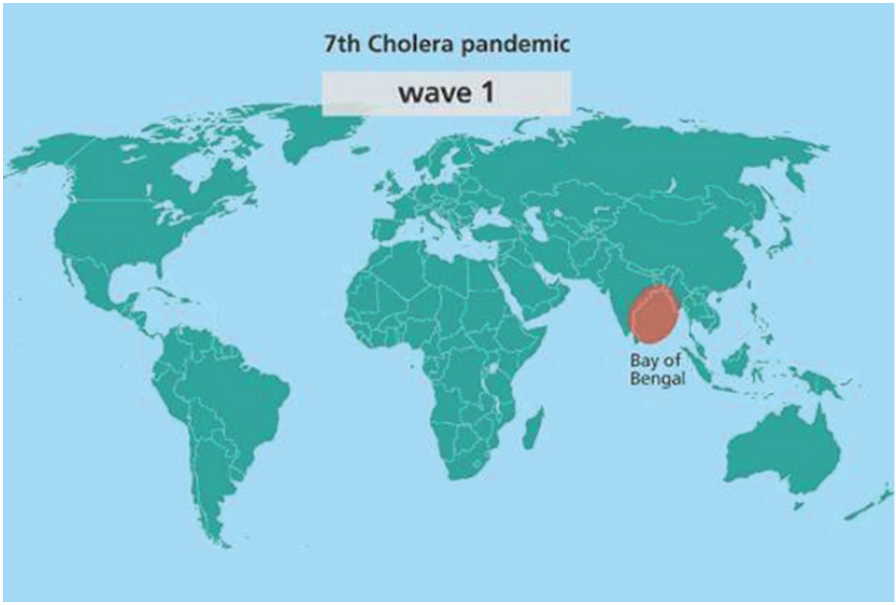


Figure 5: Cholera pandemics 7th pandemic (Ural, 2021)

Yellow Fever Outbreak (Late 1800s)

Yellow fever is a viral, vector-borne, hemorrhagic fever endemic to the tropical regions of Africa and South America. The disease derives its name from the distinct yellow color that often appears in the skin of infected individuals. The transmission cycle of the disease manifests in two forms: urban and jungle. The primary cause of the jungle cycle is the transmission of the virus through mosquitoes breeding in tree holes. While the majority of cases arise from this cycle, the urban cycle also plays a significant role. In densely populated urban areas, yellow fever can spread rapidly, causing severe consequences throughout history (Gaythorpe, 2021, pp. 1-2). In 1973, it decimated 10% of the population in the capital city of Philadelphia, and due to the failure to identify the primary cause of the disease, it spread rapidly across the country. During this period, President George Washington and Secretary of State Thomas Jefferson fled the city, which subsequently led to the establishment of Washington, D.C. as the new capital of the United States (Rosenwald, 2020).

Influenza Pandemics (Russian Flu, Spanish Flu, Asian Flu, Hong Kong Flu, Swine Flu)

The term "influenza" was first defined by Hippocrates, the "Father of Medicine," in 412 BCE. The first recorded influenza pandemic in history occurred in 1580. Since this early date, an influenza epidemic or pandemic has occurred approximately every ten years (Cartwright et al., 2000; Cited by Şahin and Demir, 2020).

The first recorded Russian flu pandemic occurred in 1889 in Uzbekistan. The flu spread as far as Tomsk and the Caucasus region, and by the end of 1889, it had reached North America, and later, in 1890, it spread to South America, India, and Australia. It is believed that this disease was caused by one of the Influenza A virus subtypes, either H3N8 or H2N2, and it is known that more than a million people lost their lives to the outbreak. The Spanish flu, caused by a deadly strain of the Influenza A virus, subtype H1N1, was first identified in New Mexico, USA, in 1918. By October 1918, it had become a global pandemic across all continents. This disease had an extremely high mortality rate and ended almost as rapidly as it began. Within 18 months, the virus disappeared entirely, having caused the death of approximately 100 million people within just six months (Şahin and Demir, 2020).

Figure 6: Spanish flu (1918) & asian flu in sweden (1957)(İltir, 2021; https://tr.m.wikipedia.org/wiki/1957-1958_Asya_gribi_pandemisi)

The Asian Flu, a variant of the Influenza A virus's H2N2 strain, emerged in China in 1956. Originating from the Guizhou province of China, the virus spread to Singapore, Hong Kong, and the United States, resulting in the deaths of approximately 2 million people, according to the World Health Organization. Following the Asian Flu, another variant, the Hong Kong Flu, appeared on July 13, 1968, and by the end of that month, widespread outbreaks were reported in Vietnam and Singapore. By the end of the year,

it had spread to India, the Philippines, Northern Australia, Europe, and the United States. New waves of the outbreak emerged in 1970 and 1972, leading to a death toll of around one million people. Another pandemic caused by the Influenza A virus, H1N1 strain, was the Swine Flu, identified in Mexico in early 2009. It is known that nearly 11-21% of the population was infected by this pandemic. The World Health Organization officially declared the pandemic over in August 2010 (Şahin & Demir, 2020).

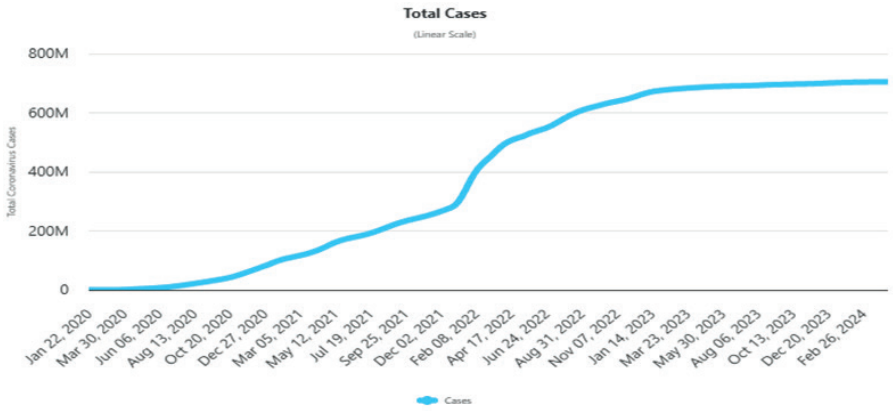
When examining the economic effects of influenza pandemics, it is known that the Russian Flu did not have significant long-term impacts due to its short duration, but it contributed to a stagnation in global trade. The Spanish Flu, particularly in the United States and India, had a negative impact on the agricultural economy, leading to significant income losses. The Asian Flu caused a decrease in labor force growth rates worldwide and contributed to rising unemployment levels (Türk, 2020, pp. 620-621). The Hong Kong Flu, by disrupting social life, also reduced the United States' GDP by approximately 1% (Saunders et. al., 2016, p. 8).

COVID-19 Pandemic (2019-2023)

COVID-19, also known as the coronavirus, is the largest pandemic of the modern era, deeply impacting the global economy. It began when the World Health Organization (WHO) reported pneumonia cases with an unknown cause in Wuhan, Hubei province, China, on December 31, 2019. Unlike previous similar cases caused by various viruses, this disease was identified as a new coronavirus, never encountered before, and became a defining event in pandemic history. Characterized by severe acute respiratory illness, the virus spread worldwide within three months after its emergence in China (Budak and Korkmaz, 2020, p. 66).

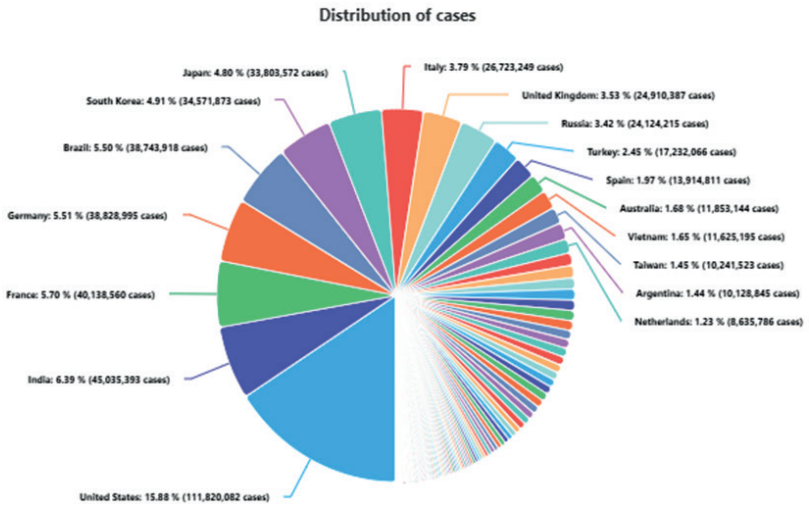
On January 5, 2020, after the World Health Organization officially declared the outbreak a pandemic, by July 2020, approximately 11 million people had contracted the virus, and around 530,000 had lost their lives. The rapidly spreading disease caused significant disruptions in the social and economic fabric of countries. In response, national governments implemented various measures to contain the spread, including social isolation, restrictions, school closures, travel bans, and flexible working arrangements. International travel was prohibited, and quarantine areas were established. The first death from the disease occurred on January 11 in China, followed by the Philippines on February 2. In Turkey, the first confirmed case was announced on March 11, the same day the World Health Organization declared the outbreak a pandemic. By March 13, when the death toll reached 5,000, the United

Nations declared the Solidarity Response Fund. On March 16, the first experimental vaccination was administered, marking a significant step in medical intervention. On March 18, the WHO announced the Solidarity Trial to identify the most effective treatments in combating the disease. During this period, daily reports of case numbers were published, and possible measures were outlined based on these updates. By March 29, the global death toll surpassed 30,000, marking the highest number of deaths at that time. By mid-April, the death toll had exceeded 2 million, and by May 12, the total number of COVID-19 cases worldwide had reached 4,088,848, with a total of 283,153 deaths. By December 2021, it was reported that the death toll had surpassed 6 million within one year (Türk, 2020; Budak and Korkmaz, 2020).



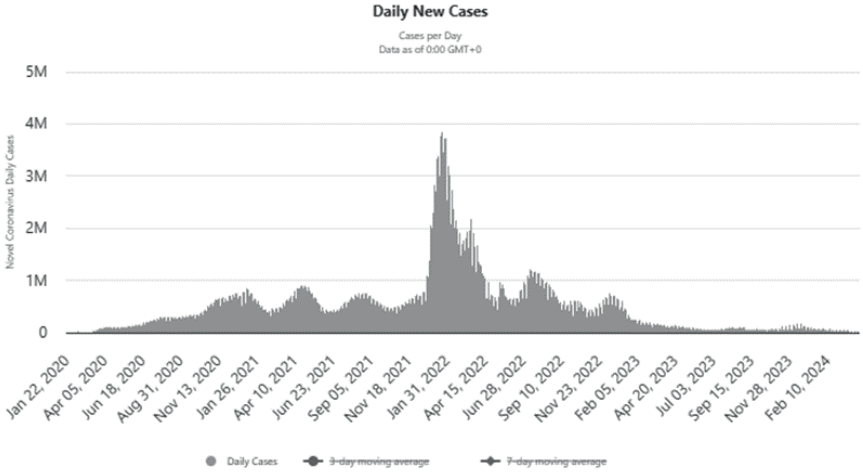
Graphic 1: Total number of cases (World) (https://www.worldometers.info/coronavirus/)

According to Graph 1, by the end of 2021, the total number of cases exceeded 290,000. Throughout 2020, the number of cases steadily increased, reaching approximately 600,000 in August. By the end of 2022, the total number of cases had risen to 665,558,943. Although the transmission rate of Covid-19 has slowed, it still continues to persist today.

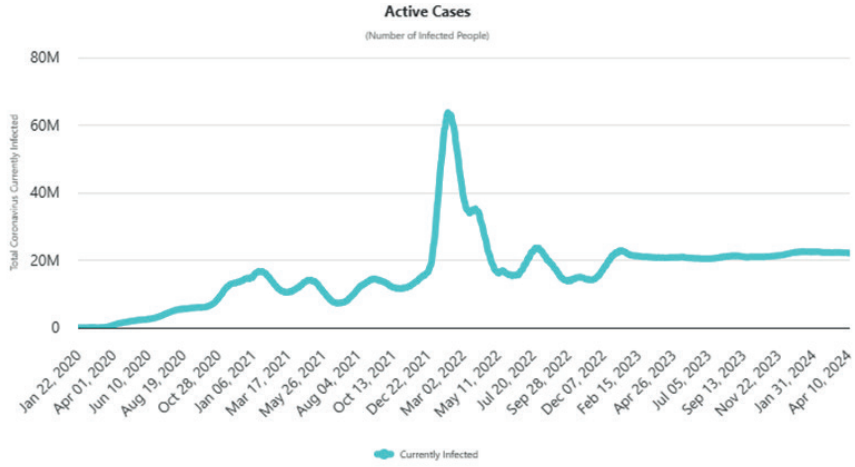


Graphic 2: Covid-19 country case distribution (https://www.worldometers.info/coronavirus/)

When examining countries based on the frequency of cases, it is observed that the United States holds the highest share with 15.88%, followed by India with 6.39% and France with 5.51%. Turkey accounts for a share of 2.45%.

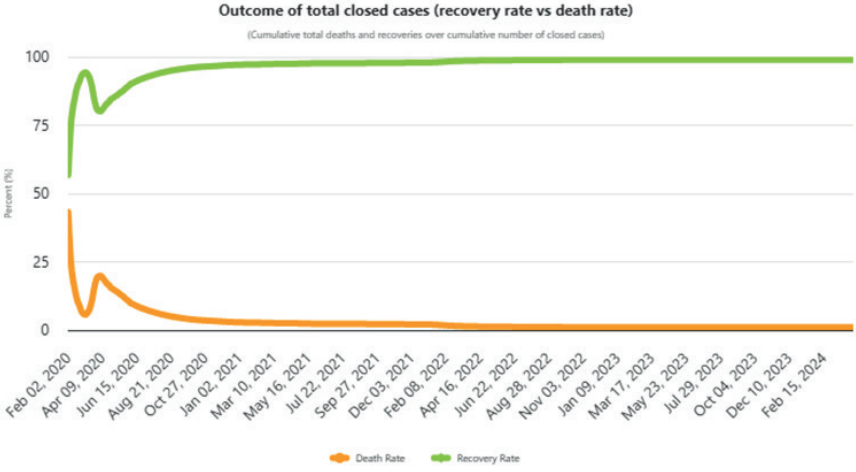


Graphic 3: Daily cases (Global) (https://www.worldometers.info/coronavirus/)



Graphic 4: Active Cases (Global) (https://www.worldometers.info/coronavirus/)

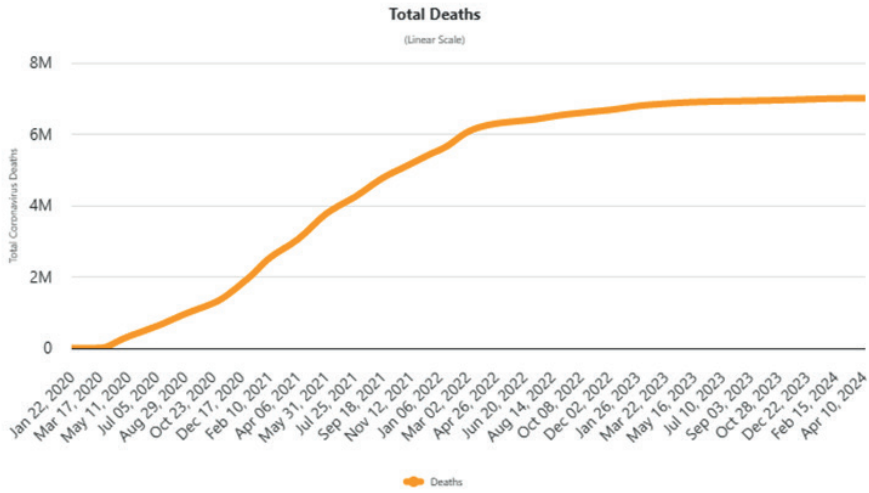
When examining Graphic 4, active cases are obtained by subtracting the number of deaths and recoveries from the total cases. According to the graph, it can be stated that, as of 2024, there are 22,124 active cases worldwide.



Graphic 5: Recoveries and deaths from cases (Worldwide) (https://www.worldometers.info/coronavirus/)

According to Graphic 5, by 2022, the vast majority of those infected with the virus have recovered, and only a small proportion have died. In 2020, the recovery rate was around 80%, while by 2022, it increased to 97%, and

by 2024, it stands at 98.97%. Similarly, the death rate among those infected with the virus was around 20% in 2020, but by 2024, this rate has decreased to 1.03%.



Graphic 6: Total deaths (World) (https://www.worldometers.info/coronavirus/)

Graphic 6: Total Deaths (World)

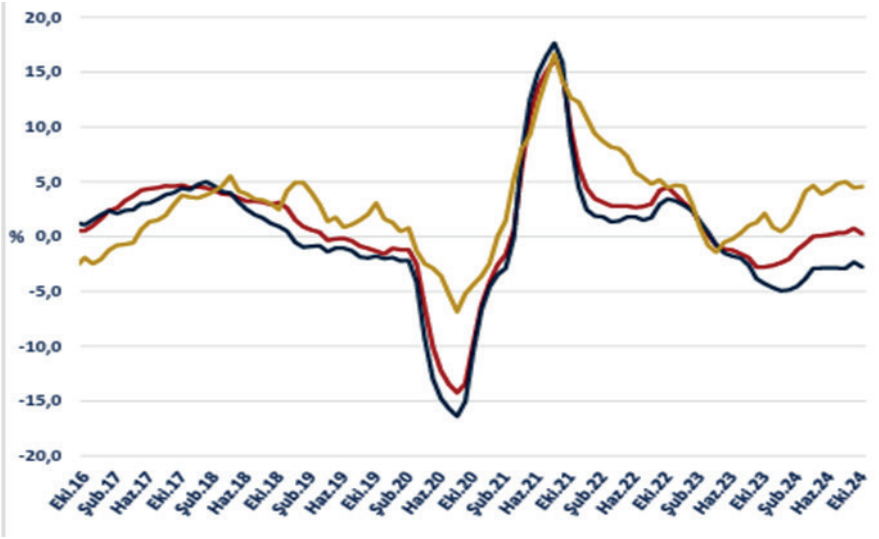
When examining Graphic 6, it is observed that the total number of deaths has increased alongside the rise in case numbers. Death rates, which began to rise from the first appearance of the cases, reached their peak around mid-2022. While the number of deaths continued to rise in the following years, a decline in the rate of increase has been observed. From 2023 onwards, the death numbers remained steady, and by 2024, they surpassed 7 million.

Economic Impacts of Covid-19

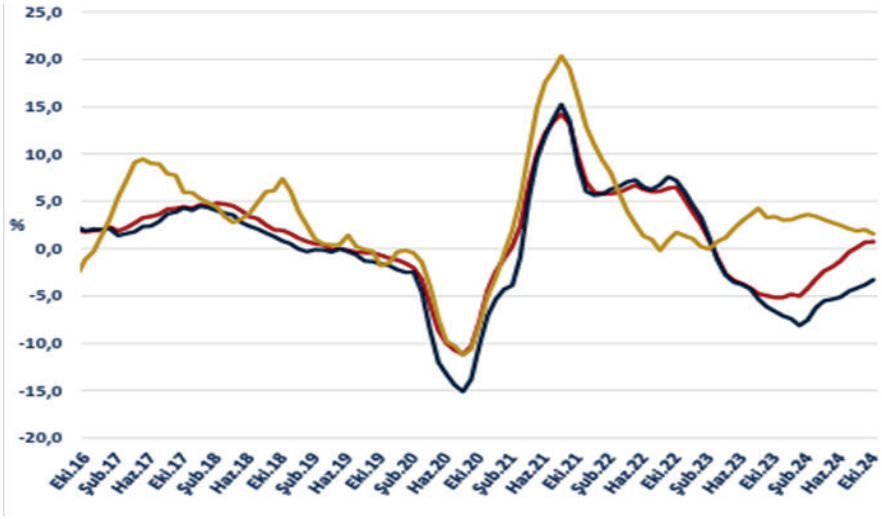
The pandemic has led to economic stagnation and crises, particularly affecting the world's largest economies, along with many other countries. The most significant impact of the pandemic on the global economy is its effect on both developed and developing countries (Türk, 2020).

In the context of globalized world trade, the resurgence of restrictions between countries due to the Covid-19 pandemic has become a separate issue for each nation. One of the essential aspects of global trade is exports, which increase the income and prestige of the trading country, create employment opportunities, reduce external deficits, provide prospects for the declining

domestic market, and increase competition. Another vital requirement of global trade, imports, plays a crucial role in providing easy access to goods and services that countries do not have domestically. Following the Covid-19 pandemic, economists predicted a global economic downturn, which ultimately became a reality. The closure of international borders, suspension of trade, and the halt in global commerce led to economic contraction. According to the report published by the Ministry of Trade of the Republic of Turkey in 2024, the general outlook of global trade is expressed according to the Global Trade Volume Index. In the graphics, countries represented in red symbolize "Developed" economies, those in blue represent the "Euro Area," and those in yellow symbolize "Developing" countries.



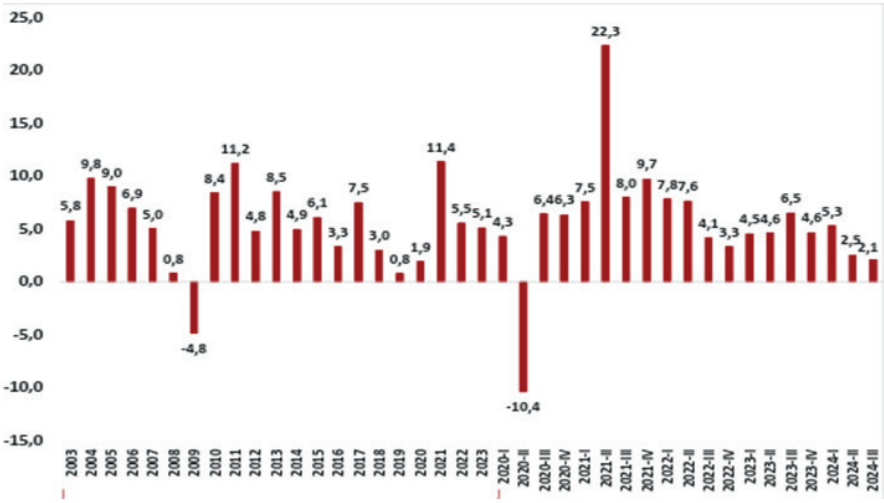
Graphic 7: Change in global export volume (6-Month Moving Average) (Ministry of Trade of the Republic of Turkey, 2024)



Graphic 8: Change in global import volume (6-Month Moving Average) (Ministry of Trade of the Republic of Turkey, 2024)

According to Graphics 7 and 8, it has been determined that global GDP decreased in 2020, leading to a contraction in world trade. Global trade volume began to shrink at the end of 2019, reaching its lowest point by mid-2020. During the peak of the COVID-19 pandemic in 2020, it is evident that both import and export rates saw their largest declines. However, by the end of 2020, global export and import volumes started to show an upward trend. With the discovery of vaccines in 2021, global trade reached its highest levels in recent years. In Turkey, after a period in 2020 where exports could not sufficiently cover imports, a significant export surplus of 21.3% was achieved in 2021, with imports increasing by 3.4% (Ünüvar and Aktaş, 2022).

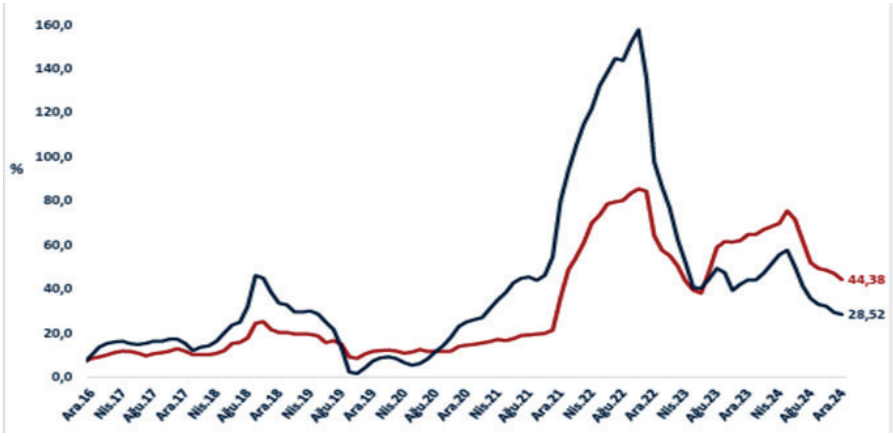
During the same period, Turkey also experienced declines in GDP growth rates. As indicated in Graphic 9, Turkey's GDP growth rate in the second quarter of 2020 was recorded at -10.4%.



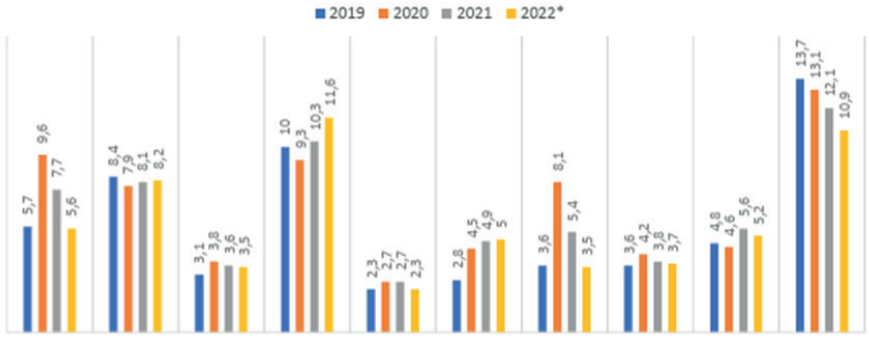
Graphic 9: Turkey's GDP growth rates by period (%) (Ministry of Trade of the Republic of Turkey, 2024)

When evaluating the data in Graphic 9, it can be observed that the year 2011, with a growth rate of 11.2%, had the highest growth rate among all periods before the COVID-19 pandemic. After 2011, the economic growth rate steadily declined, and in the second quarter of 2020, negative growth was recorded. With these figures, Turkey faced its lowest growth rate in recent years. During this period, various restrictions were imposed, including curfews, the closure of life centers, and the suspension of many activities that would contribute to economic growth. Many business owners were forced to lock their doors, and consumers reduced their spending, limiting purchases to essential items only. As a result, the economy contracted. In the 3rd and 4th quarters of 2020, negative growth figures reached significant levels, but with controlled reopening, vaccination campaigns, and the return of international mobility to pre-pandemic levels, Turkey experienced growth rates of 6.3% and 6.2%, respectively, leading to an average growth rate (Ünüvar and Aktaş, 2022).

Graphic 10 illustrates the developments in inflation based on the Consumer Price Index (CPI) and Producer Price Index (PPI) in Turkey. In 2020, during the peak of the pandemic, the measures taken led to a drop in oil prices, fluctuations in currency exchange rates, and an increase in imbalances between supply and demand. As a result, inflation rates were affected by these factors (Bölükbaş, 2020). According to the graphic, inflation in Turkey began to rise in the last quarter of 2021, reaching its peak in mid-2020.



Graphic 10: Developments in inflation (Turkey)(Ministry of Trade of the Republic of Turkey, 2024)



Graphic 11: Unemployment Rates in Developing Countries and Turkey (%) (Ünüvar and Aktaş, 2022, p. 130)

In **Graphic 11**, the unemployment rates of Canada, France, Germany, Italy, Japan, the United Kingdom, the United States, China, Russia, and Turkey between 2019 and 2022 are examined. According to the graph, it is observed that COVID-19 caused a severe unemployment problem in 2020 only in Canada and the United States, compared to other countries. In Canada, the unemployment rate was 5.7% in 2019, which increased to 9.6% in 2020. During the same years, unemployment rates decreased in France and Russia. In the United States, the unemployment rate, which was 3.6% in 2019, increased by 4.5 percentage points to 8.1% in 2020. In Turkey, however, COVID-19 did not cause significant changes in unemployment, as

the rate decreased from 13.7% in 2019 to 10.9% in 2022, showing a 2.8% improvement.

Conclusion

Throughout human history, infectious diseases that have emerged for various reasons have impacted the entire world. With the rapid spread of these diseases within human communities, mass mortality and the inevitable transformation of political and social structures have been undeniable facts. Therefore, epidemics have been phenomena that deeply influence societies throughout history, causing transformations across a wide range of areas, from healthcare systems to economies. These diseases not only affect individual or public health but also significantly impact global trade, employment, and macroeconomic balances. Influenza pandemics, Ebola, SARS, MERS, and COVID-19 in the 20th and 21st centuries have caused many deaths, severely disrupted the world economy, and led to economic losses. These and similar pandemics create imbalances in production and consumption in global trade and cause disruptions in supply chains. Furthermore, governments and international organizations have been forced to make substantial economic expenditures to combat these pandemics.

The phenomenon of globalization, which became prevalent in our language in 1980, generally brings positive results, but it can also lead to negative consequences. For instance, the phenomenon that facilitates trade also contributes to the rapid global spread of any virus as a negative consequence. The primary factor behind the transformation of diseases into pandemics is cross-border trade. In these cross-border exchanges, the movement of human capital and goods from coast to coast contributes to the rapid spread of diseases. Moreover, the ease with which individuals can travel across borders is one of the most significant factors increasing the spread of diseases.

The study highlights pandemics that have marked history, starting with the oldest ones, and includes those present in today's world. The social and economic outcomes of these pandemics are discussed. Since many of the pandemics mentioned date back to ancient times, all the available outcomes have been gathered and presented in the study. The COVID-19 pandemic, which the modern world is well acquainted with, is also examined both globally and in Turkey, and its economic effects are explained through various indicators.

Regardless of when pandemics occur in history, all of them have caused negative social and economic impacts.

References

Aytaçlar, P. Ö. (2021). *The antonine plague and Sardis' search for a solution*. *Duvar Newspaper*. https://www.gazeteduvar.com.tr/antoninus-salgini-ve-sardesin-cozum-arayisi-haber-1533669

Bakırtaş, İ. & Ozan, E. C. (2021). A general review on the economic impacts of covid-19. *Aksaray University Journal of Faculty of Economics and Administrative Sciences*, 13(4), 59-74.

Bölükbaş, M. (2020). Did inflation and interest rates in the Turkish economy get affected by the covid-19 pandemic?. *Bankacılar Journal*, 115, 50-68.

Budak, F., & Korkmaz, Ş. (2020). A general evaluation of the covıd-19 pandemic process: the Turkey example. *Social Research and Management Journal*, (1), 62-79.

Çil, R. (2014). *Justinian Plague (A.D. 541-542)*. https://www.worldhistory.org/trans/tr/2-782/justinian-plague-ad-541-542/

Demir, (2023). *Cholera Pandemic, When Did the First Cholera Outbreak Happen?* https://www.demirsaglik.com.tr/blog/saglik/kolera_pandemimi_ilk_kolera_salgini_ne_zaman_oldu#:~:text=KOLERA%20SALGINI%20NEREDE%20ORTAYA%20%C3%87%C4%B0KT%C4%B0,BAT%C4%B1%20SAHİLLERDEKİ%20BOMBAY'DA%20G%C3%B6R%C3%BCLM%C3%9C%C5%9FT%C3%9CR.

Erdem, H. (n.d.). *Cholera Agent, Epidemiology, Gülhane Military Medical Academy, Infectious Diseases and Clinical Microbiology.*

Gaythorpe, K. A. M., Hamlet, A., Jean, K., Ramos, D. G., Cibrelus, L., Garske, T., & Ferguson, N. (2021). The global burden of yellow fever. *ELIFE*, 10:E64670.

Gelaw, T. A., Eskeziaw, B. M., Dagnaw, A. Y., Marıamenatu, A. H., Alemu, A. C., Wondie, G. S., & Meles, M. K. (2020). Novel coronavirus disease (covid-19): the world's past experience on deadly outbreaks. *EJMO*, 4(3), 256-259.

Https://tr.euronews.com/2021/07/10/imf-den-salg-nla-mucadele-icin-uye-ulkelere-650-milyar-dolarl-k-rezerv-yard-m

Işık, A. (2021). An overview of the economy of pandemics. *Health Sciences*, 7(2), 135-158.

İbeş, G. (2020). *The Disease That Turned Italy into Hell: Bubonic Plague*. https://www.indyturk.com/node/129051/yaşam/italyayı-cehenneme-çeviren-hastalık-bubonik-veba

İltir, M. (2022). 9 major pandemics in human history. *Doğrulukpayı*. https://www.dogrulukpayi.com/liste/insanlik-tarihinin-9-buyuk-salgini

Pala, K. (2020). *The age of pandemics we are living through*. *Birikim Magazine*. https://birikimdergisi.com/guncel/10018/salginlar-cagi-yasadigimiz

Republic of Turkey Ministry of Trade. (2024). *Turkey's 2024 Trade Data and Emerging Trade Relations*. Ankara: Ministry of Trade Publications.

Rod-Ari, M. (n.d.). *Death, Disease, and Buddhist Patronage in Japan: The Great Smallpox Epidemic of 735.*

Rosenwald, M. S. (2020). History's deadliest pandemics, from ancient rome to modern america. *The Spokesman-Review*. https://www.spokesman.com/stories/2020/apr/15/historys-deadliest-pandemics-from-ancient-rome-to-/

Saunders-Hastigs, P., & Daniel Krewski (2016). Reviewing the history of pandemic ınfluenza: understanding patterns of emergence and transmission. *Pathogens*, 5(1), 66, 1-19.

Sayar, M. H. (2020). *The great epidemic between a.d. 165-180 during the periods of Marcus Aurelius and Lucius Verus*. *Turkish Journal of History*, 71(2020/1), 15-28.

Şahin, F., & Demir, S. (2020). Viruses, factors affecting viral pandemics, and their results. *Anatomy of a Global Pandemic: The Future of Humanity and Society*, 59-80.

T.C. Trade Ministry (2024). *Economic Outlook December 2024*. https://ticaret.gov.tr/data/5e18288613b8761dccd355ce/ekonomik%20g%C3%B6r%C3%BCn%C3%BCm%202024%20aral%C4%B1k.pdf

Tavukcu, S. (2020). *Power and Order Changes in World History Triggered by Epidemics*. 10 April 2020. https://www.sde.org.tr/sinan-tavukcu/genel/salgin-hastaliklarin-tetikledigi-dunya-tarihindeki-guc-ve-duzen-degisiklikleri-kose-yazisi-16688

Türk, A., Ak Bingül, B., & Ak, R. (2020). Economic and social impacts of pandemics experienced throughout history. *Gaziantep University Journal of Social Sciences*, Special Issue, 612-632.

Türk, M. (2020). *The State of the World Economy After the Covid-19 Pandemic and Turkey's Economic Indicators*. Istanbul: Economics Publications.

Ural, O. (2021). *Pandemics from the Past to the Present.*

Ünüvar, İ. & Aktaş, H. (2022). Economic impacts of the covid-19 pandemic in the world and Turkey. *Selçuk*

Wikipedia. *1957-1958 Asian Flu Pandemic*. https://tr.m.wikipedia.org/wiki/1957-1958_asya_gribi_pandemisi

Worldometers. *COVID-19 Statistics*. https://www.worldometers.info/coronavirus/

Yurdakul, E. S. (2015). Significant infectious disease epidemics in history. *Turkey Clinics J Public Health-Special Topics*, 1(3), 1-6.

CHAPTER 2

THE SECRET OF CHINA'S RAPID RISE IN THE 21ST CENTURY

Mehmetali KASIM[1]

ABSTRACT

China and its rapid rise in the 21st century is one of the most important issues in the world. Although the world talks about China's successes in recent years, China's rise has not emerged by chance or coincidence but has a painful process behind it. In the 20th century, China was lagging and considered one of the Third World states. The Soviet Model of socially planned development policies followed during the Mao period did not bring much to the country, and the Chinese economy was almost plunged into bankruptcy in the 1970s. However, in 1978, Chinese leader Deng initiated a sweeping reform by learning from past mistakes and benefiting from the success story and experience of developed countries, especially Japan. Incentives have begun to be given to private enterprises, foreign investments, and technologies. Accelerates infrastructure developments and education. Moreover, China preferred production and export-based development policies. By taking advantage of the developments in the world, it achieved rapid economic growth and became the second-largest economy in the world, surpassing Japan in 2010. In 2014, China surpassed America in terms of GDP purchasing power parity and became the largest economy in the world. Today, China is the largest industrial producer and exporter in the world.

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Economically rising China has simultaneously gained political, diplomatic, and military power and entered into a systematic rivalry with America on a global scale.

Key Words: China, Economic Reform, Industrialization, Global Power, Hegemonic Competition.

Introduction

The pursuit of wealth and power is among the common objectives of all nations. However, achieving these goals has proven challenging for many. The levels of prosperity have varied significantly from one country to another. While some nations have achieved economic development and attained the highest levels of social development and prosperity, others have faced persistent challenges such as poverty. The reasons behind these disparities among countries have been a subject of intense debate throughout history and continue to serve as a compelling study area.

Historically, China and India held dominant positions in the global economy, serving as centers of wealth, innovation, and cultural influence (Maddison, 2007). Maddison's analysis highlights that during the early modern period, China accounted for a substantial share of global GDP, driven by its advanced agricultural practices, thriving trade networks, and significant contributions to science and technology. However, after the 18th century, Asian countries stagnated or declined and lost their leadership position in the worldwide economy to Western nations. Western countries expanded their influence initially with the exploration of the new world and then with the rapid industrialization in the 18th and 19th centuries (Pomeranz, 2000). Pomeranz links the exploration of the new world to industrialization by highlighting how resources and wealth extracted from the Americas provided the capital and raw materials necessary for industrial advancements in Europe, thus catalyzing the Industrial Revolution. Among the Asian countries, by implementing a series of reforms during the 19th century—commonly referred to as the Meiji Restoration—Japan successfully modernized its economy and society (Jansen, 2000). This allowed the government to shield itself from the adverse effects of Western dominance.

After gaining independence in the mid-20th century, China attempted to modernize by adopting the planning-based economic model inspired by the Soviet Union (Smith, 1998). Smith highlights that this model emphasized heavy industry, centralized planning, and collectivization of agriculture. However, the lack of market incentives and rigid bureaucratic controls hindered efficiency and stifled innovation, ultimately limiting the model's

effectiveness in the Chinese context. However, these efforts largely fell short of expectations due to inefficiencies in resource allocation and a lack of technological innovation (Johnson & Brown, 2002). The cultural and economic stagnation further exacerbated China's inability to compete with rapidly industrializing Western nations (Perkins, 2013).

Substantial progress was achieved through the adoption of liberalization and reform policies—initiated by China in 1978 under Deng Xiaoping's leadership (Rodrik, 2011). These reforms marked a shift towards market-oriented economies, leading to unprecedented economic growth and industrial development (Krugman & Venables, 1995). By implementing economic reforms, China improved their levels of wealth and prosperity but also significantly expanded their influence on the global stage (Bhagwati, 2004). Scholars argue that this shift was a result of both internal debates on economic strategy and external pressures to remain competitive in an increasingly globalized economy (Naughton, 2007).

In pursuit of reclaiming leadership positions in the global economy, both countries have been developing and implementing forward-looking strategies, including investments in infrastructure, technological innovation, and international trade agreements (Gao, 2015). Meanwhile, the global community has shown increasing interest in how these developments and policy trajectories might shape the future of the world economy (Stiglitz, 2017).

China's rapid rise is a remarkable case of transformation, described by some as a "modern economic miracle" (Lin, 2012). Lin attributes this phenomenon to key factors such as sustained investment in infrastructure, policies fostering technological innovation, and a pragmatic approach to integrating into global markets. Despite challenges such as political constraints, social inequality, and environmental degradation, China's evolution from a struggling agrarian economy to a global powerhouse reflects its ability to adapt and implement effective economic policies, including state-led industrialization initiatives, export-driven growth strategies, and targeted investments in infrastructure and education (Huang, 2010). As the world continues to analyze China's economic trajectory, its experiences provide valuable insights into the dynamics of development and globalization.

1. Economic Reforms and Market Liberalization

During the Cultural Revolution from 1966 to 1976, China's economy under the leadership of Mao Zedong was almost bankrupt. Mao's pursuit of ideological policies and anti-western tendencies alienated the Chinese

economy from international communities. The opposition of Mao Zedong and the ones who criticized its wrong policies were subjected to punishment. The centralization of power on the one hand and the idolization of iconic leaders leave no room for political change or economic improvements. However, the death of Mao in 1976 brought an opportunity for a leadership change and the pursuit of different economic approaches to development.

The new government opened the discussion on China's economic future and its role in international affairs. During that time the revolutionary man Deng Xiaoping increased his influence in decision-making. China's economic transformation began with the reforms initiated by Deng Xiaoping in 1978 (Kasım, 2021). These reforms transitioned the country from a centrally planned economy to a more market-oriented system while retaining significant state control over critical industries. China began to allow private ownership and private enterprise. Moreover, Beijing abandoned Mao's ideological approach and embraced more pragmatic policies. China tried to build good relations with international communities including Japan, and America. This provides an ample environment for implementing economic reform and achieving economic growth.

The government took significant steps to attract foreign investment by creating various specialized zones. These included Special Economic Zones (SEZs) with attractive tax benefits and simplified regulations, as well as open coastal cities aimed at boosting trade and international commerce (Kobayashi, Baobo, and Sano, 1999). The creation of Special Economic Zones (SEZs) acted as a powerful driver for attracting significant foreign investment, particularly from Hong Kong and Taiwan, due to their close economic and cultural connections with China. These zones, designed with investor-friendly policies such as tax incentives, streamlined regulations, and enhanced infrastructure, quickly became hubs for international business activity. At the same time, China actively advanced its innovative model of a 'socialist market economy,' which blended state oversight with market-oriented reforms. This dual strategy not only facilitated foreign capital inflows but also stimulated domestic economic activity. The resulting entrepreneurial boom gave rise to a substantial number of entrepreneurs and new venture businesses, laying the groundwork for economic diversification, innovation, and China's emergence as a leading global economic force.

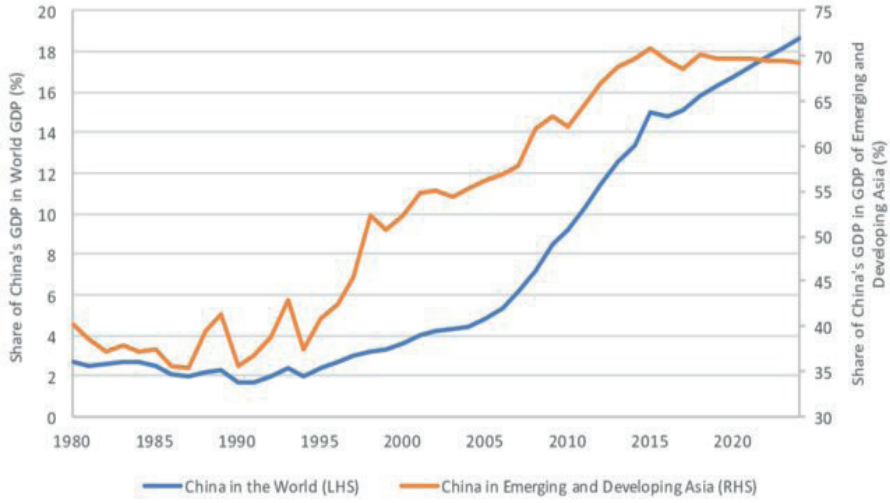

Figure 1. China's Increasing Share of World GDP Since 1980th (Song, Zhou, and Hurst, 2019).

After economic reform, China's economic development began to improve. The economy was growing above the world average. And it became one of the fastest-growing economies in the world. China's share in the world economy also increased year by year. Despite its massive population that accounts for about 20% of the world, China's share in the world economy was about 2% in 1980th. After several years of high growth, China's share in the world economy reached 18% in 2019.

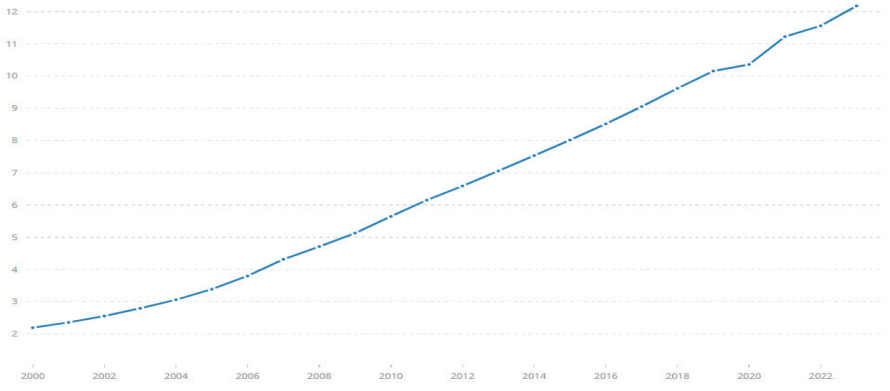

Figure 2. China's Per Capita GDP Growth

Post-1978 China saw average real growth of more than 9 percent a year with fewer and less painful ups and downs. In several peak years, the economy grew more than 13 percent (Hu and S. Khan, 1997). Its per capita income also grows faster than the world average. Between 2000 and 2023, China's per capita GDP increased nearly 6 times from 2.1 thousand US dollars in 2000 to over 12.17 thousand US dollars in 2023. Policies such as the establishment of Special Economic Zones (SEZs), which encouraged foreign direct investment (FDI), played a pivotal role in jumpstarting China's industrialization and export-driven growth. By the early 21st century, China had become the "world's factory," leveraging its vast labor force to dominate global manufacturing. This pragmatic shift was instrumental in enabling China to transition from an agrarian-based economy to a global manufacturing powerhouse. By balancing learning from the West with tailored domestic reforms, China successfully laid the foundation for its rapid rise as a leading player in the global economic system.

2. Global Integration and Trade

Before 1971, China was largely isolated on the international stage, maintaining limited trade relations with only a few communist countries. Its international interactions were minimal, and it lacked strong economic or diplomatic ties with the majority of the world's nations (Kasım, 2021). Although gaining membership in the United Nations in 1971 marked a significant step toward normalization in its global status, China's inward-focused policies, emphasizing self-sufficiency, continued to hinder its integration into the broader international community.

The 1978 reform and opening-up policy marked a transformative era, often described as a historic turning point akin to the Shang Yang reforms of ancient China. This shift signified a departure from centuries of isolationism, particularly prevalent since the Ming dynasty, as China began to actively engage with the international community. Institutional reforms enabled the nation to embrace modern economic and political realities (Naughton, 2007).

China's progress in global integration was exemplified by key milestones which are Achieving Most-Favored-Nation (MFN) status with the United States in 1979, joining the International Monetary Fund (IMF) and World Bank in 1980, entering the Asian Development Bank in 1986, and becoming a member of the World Trade Organization (WTO) in 2001 (World Trade Organization, 2001).

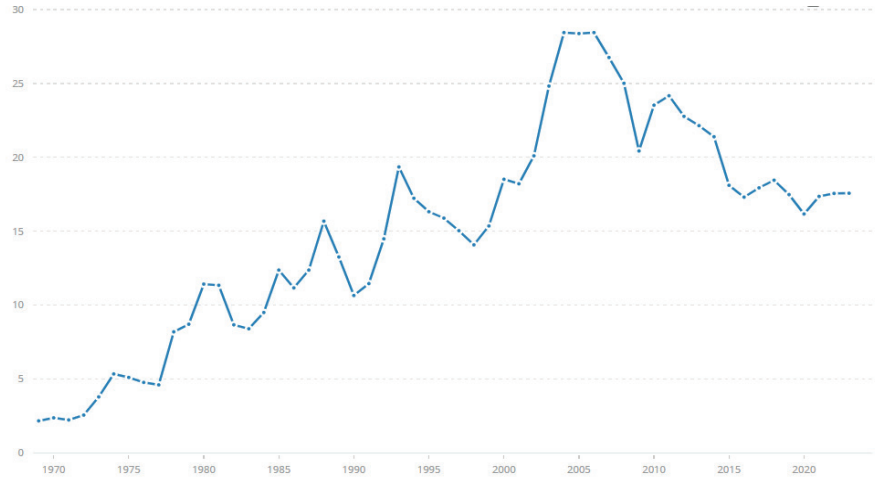

Figure 3. China's Imports of Goods and Services (% of GDP)

China's trade with the world increased significantly after its recognition by the United Nations. This further accelerated with economic reform in 1978 and entering into the World Trade Organization (WTO) in 2001. The accession to the WTO was a turning point in its rise. WTO membership allowed China to integrate deeper into global trade networks, significantly boosting exports and attracting international capital.

2013 China kicked off a highly ambitious project to connect its economy with Asia, Europe, Africa, and beyond. This integration was bolstered by strategic infrastructure investments, such as the Belt and Road Initiative (BRI), which enhanced connectivity and trade with over 140 countries, further cementing China's role as a global economic powerhouse.

Figure 4. China's Belt Road Initiatives (National Maritime Foundation, 2021).

China is steadily expanding its influence in the global economy and international politics. With growth rates that consistently exceed the worldwide average and those of developed economies, China has emerged as a pivotal actor in shaping future global dynamics. This sustained economic performance has not only fostered optimistic projections for its development trajectories. Furthermore, it has also positioned itself as a leading contender for greater geopolitical and economic influence in the decades ahead**.** China using its economic heavyweight may want to increase its influence around the world. Especially global south has especially been keen to cooperate with China. China has some advantages to facilitating BRI:

China benefited from two key advantages in its Belt and Road Initiative (BRI). Firstly, the country had substantial financial reserves, which it sought to grow through profitable investments. This led to the establishment of the Asian Infrastructure Investment Bank (AIIB), a significant move to fund infrastructure projects and support regional development. Secondly, China had access to a broad clientele for its loan facilities. Many economically weaker nations, unable to secure funding for development projects from wealthier countries or traditional international institutions like the World Bank, turned to China. These countries readily embraced China's development propositions under the BRI, making it a cornerstone of China's global economic strategy (National Maritime Foundation, 2021).

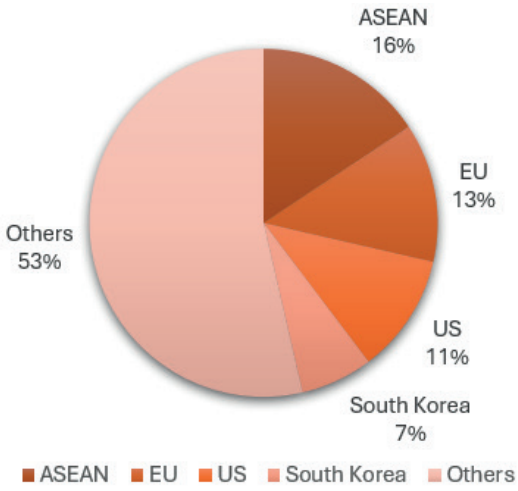

Figure 5. The Main Trading Partners of China in 2024 (China-briefing, November 8, 2024).

America and Europe have been China's main trading partners. Trade with the rest of the world also has been increasing significantly. Especially South East Asia emerged as a top trading partner of China. In recent years there have been tensions between China and America regarding competition, including trade, security, and global hegemony. This negatively affected the prosperity of the future economic relations of China with America and its Western alliances. This forced China to find alternative markets for its massive industrial products. In some cases, the BRI countries are considered idle partners. Their share in China's total trade is on the rise. In the first 10 months of 2024, BRI countries account for over 46.9% of China's overall imports and exports (China-briefing, 2024).

3. State-led Development and Strategic Planning

Prior to 1978, China's economy was largely characterized by centralized planning, which resulted in inefficiencies and stagnation. The Great Leap Forward (1958-1962) and the Cultural Revolution (1966-1976) epitomized the failures of this approach, leading to widespread famine and economic disarray (Naughton, 2007). By the late 1970s, the Chinese leadership recognized the urgent need for reform. Deng Xiaoping's rise to power signified a shift towards pragmatism, encapsulated in his famous dictum: "It doesn't matter whether a cat is black or white, as long as it catches mice" (Deng, 1993). Following the economic reforms initiated in 1978, China

underwent a profound transformation in its economic policies. Unlike the ideological and inward-focused strategies of Mao Zedong's era, the post-reform leadership, under Deng Xiaoping, adopted a pragmatic and outward-looking approach

The reforms began with agricultural de-collectivization, which allowed farmers to sell surplus produce in the market. This "household responsibility system" significantly increased agricultural output and laid the foundation for subsequent industrial growth (Lin, 1992). The success of these initial reforms catalyzed further liberalization, leading to the establishment of Special Economic Zones (SEZs) that attracted foreign investment and technology (Zhang, 2018).

This shift marked a deliberate effort to distance the nation from rigid ideological actions and instead embrace strategies that leveraged the advantages of developed nations (Kasım, 2021). By studying and adapting the successful practices of advanced economies, China focused on modernizing its industries and fostering innovation. At the same time, the government prioritized establishing robust trade relations with key global partners, which facilitated the integration of China into the global economy. This approach enhanced China's export potential and attracted substantial foreign direct investment (FDI), contributing to its rapid industrialization and economic growth.

China's state-led development model is characterized by several key features:

1. ***Strategic Planning and Five-Year Plans****:* The Chinese government employs a centralized approach to economic planning, evidenced by the Five-Year Plans that outline national priorities and development goals. The 13th Five-Year Plan (2016-2020) emphasized innovation, sustainable development, and the transition to a consumption-driven economy (State Council of China, 2016). These plans serve as blueprints for economic transformation, directing resources to priority sectors and fostering coordinated development across regions.
2. ***Infrastructure Investment****:* The state has prioritized massive investments in infrastructure as a means to stimulate economic growth and enhance productivity. According to the Asian Development Bank (2017), infrastructure investment has been a critical driver of China's GDP growth, facilitating trade and connectivity. Projects such as the Belt and Road Initiative (BRI) exemplify China's commitment to

enhancing regional and global connectivity through infrastructure development (Zhang, 2018).

3. ***Support for Key Industries****:* The Chinese government has strategically identified key industries for development, providing targeted support through subsidies, tax incentives, and favorable regulations. The "Made in China 2025" initiative aims to upgrade the manufacturing sector by promoting advanced technologies such as robotics, aerospace, and renewable energy (Wang, 2019). This initiative reflects a broader strategy to achieve technological self-sufficiency and enhance China's position in global value chains.
4. ***Foreign Direct Investment (FDI)****:* The Chinese government has actively sought foreign direct investment as a means of technology transfer and economic modernization. The establishment of SEZs has facilitated the influx of foreign capital and expertise, contributing to rapid industrialization (Zhang, 2018). According to the World Bank (2020), FDI has played a crucial role in enhancing China's export capabilities and integrating the country into the global economy.

This pragmatic shift was crucial in transforming China from an agrarian economy into a global manufacturing leader. By combining lessons from the West with carefully designed domestic reforms, China established the groundwork for its rapid ascent as a key player in the global economic system. China's centralized political system has also facilitated long-term strategic planning, a capability often absent in more fragmented democratic systems. Initiatives like "Made in China 2025" underscore the government's dedication to achieving technological self-sufficiency and advancing the country's position in the global value chain.

Since 1979, China has experienced extraordinary economic growth, with real annual GDP increasing by an average of 9.5% through 2018. The World Bank has described this as "the fastest sustained expansion by a major economy in history" (Morrison, 2019). This rapid growth has enabled China to double its GDP roughly every eight years and lifted an estimated 800 million people out of poverty Today (World Bank, 2024). China stands as a global economic powerhouse. It is the world's largest economy based on purchasing power parity (PPP), the leading manufacturer, the top merchandise trader, and the largest holder of foreign exchange reserves.

The government played a crucial role in facilitating and implementing economic reforms during these processes. China's strategic planning was to gradually implement its policies without changing the core objective of

achieving modernization of the economy. In recent years, China's economic growth has slowed due to structural constraints such as a shrinking working-age population, decreasing returns on investment, and declining productivity growth. The key challenge will be identifying new growth drivers while tackling the social and environmental consequences of its past development strategies. The role of the state also needs to continue to evolve, focusing on providing a clear, fair, and stable business environment, strengthening the regulatory system and the rule of law to further support the market system, as well as ensuring equitable access to public services to all citizens (World Bank, 2024).

The success of any reforms depends on political stability, the right decision-making, implementation, and sustainability of the process without facing suspension and interruption. In China generation of leaders stuck to Deng Xiao Ping's 24-character grand strategy:

"Observe calmly; secure our position; cope with affairs calmly; hide our capacities and bide our time; be good at maintaining a low profile; and never claim leadership." This is because China believes that its current strength is insufficient, and the time has not yet come to announce and implement this great strategy, and consequently must 'Hide our capabilities and bide our time,' concealing the true situation and waiting for the right time of opportunity. The strategy provided basic principles on how China should protect its national interests while increasing its interactions with the world (Global security, 2013).

Despite the impressive economic growth achieved through state-led development, several challenges and criticisms have emerged:

1. ***Environmental Sustainability****:* Rapid industrialization has resulted in significant environmental degradation. Air and water pollution, soil contamination, and biodiversity loss are pressing issues that threaten the sustainability of China's growth model. The government has recognized these challenges and is increasingly prioritizing green development. The 13th Five-Year Plan set ambitious targets for reducing carbon emissions and increasing the share of renewable energy in the energy mix (State Council of China, 2016).
2. ***Social Inequality****:* The benefits of economic growth have not been evenly distributed, leading to significant social disparities. Urban-rural divides, income inequality, and regional imbalances pose challenges to social cohesion and stability. The Chinese government has implemented various poverty alleviation programs, yet progress

remains uneven, particularly in rural areas (Li & Wu, 2020). According to the World Bank (2020), addressing these inequalities is crucial for maintaining social stability and fostering inclusive growth.

3. ***Political Repression****:* The emphasis on stability has often translated into political repression. The Chinese government's approach to dissent, particularly in regions like Uyghur region and Tibet, has drawn international condemnation and raised concerns about human rights violations (Friedman, 2021). The lack of political pluralism and restrictions on civil liberties pose significant challenges to the legitimacy of the state-led development model.
4. ***Demographic Challenges****:* China faces demographic challenges, particularly an aging population that threatens to strain social services and economic growth. The one-child policy, which was in place for several decades, has resulted in a shrinking workforce. The government is now grappling with the implications of this demographic shift and is exploring policies to encourage higher birth rates and support for the elderly (Zeng & Hesketh, 2016).

While there are many issues related to China's human rights problem, mistreatment of various religious groups and non-Han ethnicities, corruption, inequality, degradation of the environment, etc. In terms of achieving economic development and industrialization, the Chinese government very wisely exploited the weakness of democratic institutions in the Western world and international development for its national interest. Over several decades China accumulated massive wealth and continued to build its capabilities and economic well-being. As China moves forward, its state-led development model will need to adapt to changing domestic and global circumstances.

To sustain economic growth, China must transition to an innovation-driven economy. Investment in research and development (R&D) will be crucial for fostering technological advancements and enhancing competitiveness (Wang, 2019). The government has set ambitious targets for increasing R&D spending and promoting innovation in key sectors.

Balancing economic growth with environmental sustainability will remain a critical challenge. The government must continue to prioritize green technologies and sustainable practices to mitigate the environmental impact of industrialization. Policies promoting renewable energy, energy efficiency, and sustainable urban development will be essential for achieving long-term sustainability (State Council of China, 2016).

Addressing social inequality and improving social welfare will be paramount for maintaining social stability. The government must implement policies that promote inclusive growth, ensuring that the benefits of economic development reach all segments of society. This includes investments in education, healthcare, and social safety nets (Li & Wu, 2020).

As China asserts itself on the global stage, its approach to international relations will need to evolve. The Belt and Road Initiative (BRI) exemplifies China's ambition to enhance connectivity and trade with partner countries. However, China must navigate complex geopolitical dynamics and address concerns about debt sustainability among partner nations (Zhang, 2018).

Conclusion

China's ascent in the 21st century stands as one of the most profound transformations in global economic and political history. A strategic blend of market-oriented economic reforms, state-led development strategies, and active global integration has underpinned its ascent. Beginning with Deng Xiaoping's reforms in 1978, China transitioned from a centrally planned economy to a pragmatic hybrid model that effectively leveraged foreign investment, export-led industrialization, and infrastructure development. Establishing Special Economic Zones and integrating into global institutions, such as the World Trade Organization, facilitated its transformation into the world's largest manufacturer and a dominant player in international trade.

China's economic growth, averaging nearly 9.5% annually over several decades, has lifted hundreds of millions out of poverty, positioning the country as a global economic powerhouse. Beyond economics, China's rise has brought significant geopolitical implications, establishing it as a formidable competitor in global politics, diplomacy, and military capabilities. Initiatives like the BRI further highlight China's ambition to shape the global order through strategic investments and partnerships, particularly with developing nations.

Despite these achievements, China's journey has not been without challenges. Issues such as environmental degradation, income inequality, and human rights concerns underscore the complexities of its development model. Additionally, structural economic challenges, such as a shrinking working-age population and diminishing returns on investment, signal potential obstacles to sustaining growth in the future.

Ultimately, China's rise exemplifies the effectiveness of long-term strategic planning and the adaptability of state-led models in navigating the

demands of globalization. As China continues to pursue its aspirations, its trajectory will undoubtedly influence the evolving dynamics of global power and economic leadership in the coming decades.

Nations and global institutions face the dual challenge of navigating China's rapid rise as a global power while fostering a balanced, equitable, and sustainable international order. To address this, it is essential to adopt a multifaceted strategy that combines resilience-building, collaboration, and the promotion of shared values. These recommendations focus on reducing vulnerabilities by diversifying economic dependencies, strengthening global alliances, and investing in domestic innovation to ensure long-term stability and competitiveness.

By balancing strategic competition with avenues for collaboration, investing in innovation and resilience, and advancing a values-driven global agenda, the international community can shape a future where prosperity, sustainability, and equity prevail. This approach not only addresses the challenges posed by China's ascent but also ensures that the global system evolves in a way that benefits all nations and regions.

Reference

Asian Development Bank. (2017). *Asian Development Outlook 2017: Financing for the Sustainable Development Goals*. Manila: ADB.

Bhagwati, J. (2004). *In defense of globalization*. Oxford: Oxford University Press.

China-briefing, (2024, November 8). China's Import-Export Trends 2024-25: A Comprehensive Review of the First 10 Months. Retrieved November 18, 2024, from https://www.china-briefing.com/news/china-import-export-trends-2024-25-the-first-10-months/

Deng, X. (1993). *Selected Works of Deng Xiaoping*. Beijing: Foreign Languages Press.

Friedman, G. (2021). *The Future of War: A History*. New York: Anchor Books.

Gao, P. (2015). *China's path to modernization: Reform and global leadership*. Cambridge: Cambridge University Press.

Global Security, (2013, December 28). Deng Xiaoping's "24-Character Strategy". Retrieved November 22, 2024, from https://www.globalsecurity.org/military/world/china/24-character.htm

Huang, Y. (2010). Capitalism with Chinese characteristics: Entrepreneurship and the state. Cambridge University Press.

Jansen, M. B. (2000). *The making of modern Japan*. Brighton: Harvard University Press.

Johnson, L., & Brown, M. (2002). *Economic inefficiencies in planned economies: A comparative study*. Brighton: Harvard University Press.

Kasım, M. (2021). *Devlerin Uyanışı: Çin ve Hindistan'ın Yükselişi*. Ankara: Karina Yayınevi.

Kobayashi, S, Baobo, J. and Sano, J. (1999). The "Three Reforms" in China: Progress and Outlook. *Sakura Institute of Research*, Inc, 45, 1-28.

Krugman, P., & Venables, A. J. (1995). Globalization and the inequality of nations. *The Quarterly Journal of Economics*. 110(4), 857–880.

Li, J., & Wu, Y. (2020). "China's Economic Challenges: Structural Changes and Policy Responses." *China Economic Review*, 60, 101-113.

Lin, J. Y. (1992). "Rural Reforms and Agricultural Growth in China." *The American Economic Review*, 82(1), 34-51.

Lin, J. Y. (2012). Demystifying the Chinese economy. Cambridge University Press.

Maddison, A. (2007). *Contours of the world economy, 1–2030 AD: Essays in macro-economic history*. Oxford: Oxford University Press.

Morrison, W. M. (2019). *China's Economic Rise: History, Trends, Challenges, and Implications for the United States.* Washington: Congressional Research Service.

National Maritime Foundation, (2021, 11 August). China's Belt and Road Initiatives: Contours, Implications and Alternatives. Retrieved October 2, 2024, from https://maritimeindia.org/chinas-belt-and-road-initiatives-contours-implications-and-alternatives/

Naughton, B. (2007). *The Chinese Economy: Transitions and Growth*. Cambridge, MA: MIT Press.

Perkins, D. H. (2013). The economic transformation of China. Wiley.

Pomeranz, K. (2000). The great divergence: China, Europe, and the making of the modern world economy. Princeton University Press.

Rodrik, D. (2011). *The globalization paradox: Democracy and the future of the world economy*. New York: W. W. Norton & Company.

Smith, A. (1998). *Post-war development strategies in Asia*. Princeton: Princeton University Press.

Song, L., Zhou, Y., and Hurst, L. (2019). *Deepening reform and opening-up for China to grow into a high-income country. In book: The Chinese Economic Transformation: Views from Young Economists*. Canberra: ANU Press.

State Council of China. (2016). *The 13th Five-Year Plan for Economic and Social Development*. Beijing: State Council.

Stiglitz, J. E. (2017). *Globalization and its discontents revisited: Anti-globalization in the era of Trump*. New York: W. W. Norton & Company.

Wang, H. (2019). "Made in China 2025: A New Industrial Policy." *Asian Economic Policy Review*, 14(1), 1-22.

World Bank. (2020). China: Overview. Retrieved from October 10 2024, from World Bank. org.

World Bank. (2024). Countries Data. Retrieved October 05, 2024, from worldbank.org.

World Trade Organization (WTO). (2001, 11 Dec). *China's Accession Protocol*. Retrieved October 01, 2024, from https://www.wto.org/english/thewto_e/acc_e/a1_chine_e.htm

Zeng, Y., & Hesketh, T. (2016). "The Effects of China's One-Child Policy: A Review of the Literature." *Journal of Family Planning and Reproductive Health Care,* 42(1), 6-12.

Zhang, X. (2018). "The Role of Foreign Direct Investment in China's Economic Growth." *International Journal of Economics and Finance*, 10(3), 12-25.

CHAPTER 3

ISLAMIZATION OF TURKEY AND THE ROLE OF THE DIRECTORATE OF RELIGIOUS AFFAIRS

Kayla Ada DEVECİ[1]

Abstract

This paper examines the role of the Religious Affairs Directorate (Diyanet) in Turkey's Islamization under the Justice and Development Party (AKP). Established in 1924 to regulate religious affairs in a secular state, Diyanet's influence has expanded significantly, particularly under AKP rule. With substantial budget increases—surpassing many key ministries—Diyanet has become a central actor in Turkey's political and social transformation. This expansion aligns with AKP's broader strategy to integrate Islam into governance, education, and public life. The growth of imam-hatip schools, the introduction of religious elective courses, and the conversion of institutions into religious ones illustrate Diyanet's role in shaping education policy. Additionally, its activities extend to mosque construction, religious messaging, and controversial financial practices, raising concerns about transparency and secularism. The alignment of Diyanet with AKP policies has facilitated the institutionalization of Islam in public affairs, often at the expense of Turkey's constitutional commitment to secularism. The paper argues that Diyanet's increasing power not only reshapes Turkey's religious

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and political landscape but also reflects broader global trends of religious revivalism in governance. I highlight the tension between secular principles and state-sponsored Islam, questioning the future trajectory of Turkish secularism.

Keywords: AKP and Religious Policy, Diyanet (Religious Affairs Directorate), Islamization of Turkey, Secularism and Politics

Introduction

Turkey has long struggled with the role of religion in public life, influenced by its Ottoman history and the secular reforms of the Republic. While Mustafa Kemal Atatürk aimed to create a strictly secular state, religion has remained a part of public affairs, changing with each political period. One of the most important institutions in this process is the Directorate of Religious Affairs (Diyanet İşleri Başkanlığı), which was founded in 1924 to manage religious issues within a secular system. Over time, Diyanet has changed significantly, reflecting shifts in Turkey's political and ideological landscape. Under the Justice and Development Party (AKP), the institution has gained more power, playing a key role in the Islamization of the country. This paper explores how Diyanet's increasing budget, influence over education, and close ties with the government have contributed to this process. By looking at these factors, the paper shows that Diyanet has become an important tool in AKP's policies, challenging the country's secular foundations.

The Establishment of the Religious Affairs Directorate (Diyanet)

Since the Ottoman Empire and its millet system, Turkey as we know it today has been a predominantly Muslim society. Turkey became a secular country after the birth of the Republic and Mustafa Kemal's reforms. As the Constitution also states in Article Two, Turkey is a "demokratik, laik ve sosyal bir hukuk Devletidir [democratic, secular, and social rule of law state]." In a country that has laicism as one of its core values in the Constitution, the Religious Affairs Directorate (Diyanet İşleri Başkanlığı) was founded in 1924. Many debated extensively about the establishment of Diyanet. It was justified by the reasons that it was established to meet the social needs created after the abolition of the Şeyhülislam and to prevent possible reactions to a democratic rule (Dalmiş, 2022). Since its establishment, Diyanet has shaped Turkey and Turkey has shaped Diyanet drastically. With the political atmosphere of each era, Diyanet's outlook on Turkey and its activities has differed greatly. Through the Justice and

Development Party's (AKP) Islamization politics, Diyanet has made itself a predominant figure in Turkish politics often making the headlines with its increased budgets, luxurious vehicles, and speeches given. The Islamization of Turkey follows suit with the 20th-century trends around the world; the supranationalist revivalist movements (Gülalp, 2001). Under AKP's rule, Diyanet's activities have reached a new height supporting the Islamization of Turkey. Diyanet under AKP's rule aids the Islamization politics through their budget given by the Presidency and contributions to the education system.

Diyanet's Expanding Budget

The budget of the Diyanet has fluctuated greatly from 1924 to 2024, reaching a new height in 2024 with 91.824.805.000 TL. Looking at the Proposal for the 2024 Central Government Budget Law and Attached Schedules, this number surpasses many other directories such as but not limited to, the Ministry of Industry and Technology (78 million TL), Ministry of Culture and Tourism (38 million TL), Ministry of Energy and Natural Resources (48 million TL), and Ministry of Interior (76 million TL) along with many other ministries. This can be seen as problematic since most of the ministries whose budget is under Diyanet's are of great importance. For example, the Ministry of Interior's budget is less than that of Diyanet's, which is problematic since the Ministry of Interior should be one of the most important ministries in a nation that addresses issues for the citizens, especially in a country facing inflation like Turkey. Furthermore, the Ministry of Industry and Technology's budget being more than Diyanet's is troublesome, especially in 2024. In a postmodern world that is being shaped by new technologies every day, reliance on technology is of great importance for the market, industries, and citizens. While most other nations are raising their investments and budgets for developing new technologies, Turkey's budget for this being less than that of a religious department is conflicting with the promises the President has made to Turkey. This also reflects the AKP's goals; Islamization politics.

When looking at the numbers left to the personnel of each ministry, one can also find evidence that supports the Islamization of Turkey. While the budget left to the personnel of Diyanet is 77 million TL, the budget for the personnel of the Ministry of Foreign Affairs is 14 million TL. Considering consulates and diplomats are also part of the Foreign Affairs Ministry where it should have more personnel than Diyanet has less budget for its personnel is perplexing. Looking at the percentage of the budget the Diyanet has gotten over the years, one can see AKP's goals. During the 1950s, Diyanet made up 0.49% of the budget. In the 1990s, it was raised to 0.86%. Moreover, between

2011 and 2020 it reached 1.1% of the budget. This sudden and high jump further proves AKP's incentives to work towards an Islam-based Turkey.

Diyanet's Role in Education and Islamization

Through their budget and support from the Presidency, they are able to have a strong influence on many factors of social life in Turkey, most importantly education. Prior to the AKP era, imam-hatip schools were first opened by DP as a continuation of medreses and of the Ottoman era (Lord, 2018). They were justified as raising personnel for the Diyanet (Lord, 2018). The number of such schools remained mostly stable with small increases throughout the years. After the 1980 coup, most imam-hatip schools were closed down and Diyanet was suppressed, often criticizing the government for secular reforms. With the Welfare Party coming to power, these were relaxed in the 1990s (Lord, 2018). When AKP came to power, imam-hatip schools and other religious education programs and courses rose in numbers and in terms of their effectiveness. AKP had implemented the Islamization of the curriculum within the general education system (Lord, 2018). In high schools, 'elective' courses were given in addition to 'Din Kulturu ve Ahlak Bilgisi [Religious Culture and Ethics]' courses (Kap, 2014). These electives are about the Prophet's life, the Quran, and fundamental religious theories (Kap, 2014 & Lord, 2018). In most schools, no other electives are available except for these which force the students to take such 'elective' courses, helping the Islamization doctrine of AKP build a new Muslim generation.

Under AKP, imam-hatip school graduates were able to apply for university entrance exams and compete with other students which increased the attractiveness of the schools especially to low-income families and peripheries where no other school is available nearby (Lord, 2018). Before, imam-hatip graduates' jobs were limited to Diyanet personnel or other religious affairs-affiliated programs. Now, graduating from an imam-hatip school and a 'secular' high school held almost the same value; they could all go to the same universities in theory. Furthermore, Quran courses were re-opened in 2003 which created an exponential rise in the numbers aiding the Islamization of Turkey (Lord, 2018). In 2014, Diyanet pushed for religious education to be guided by them (Lord, 2018). Following the 2015 attempted coup, Diyanet proposed the Gulenist schools be converted into imam-hatips under the guidance of the Diyanet. (Lord, 2018). This was effectively accomplished in 2016 and efforts continue to this day (Lord, 2018). The decision was that the Qur'an schools run by Diyanet for children aged four to six should be considered as part of early childhood education; private imam-hatip science schools should be established; and religious education managed

by Diyanet should be incorporated into the General Staff of the Republic of Turkey (Lord, 2018). Also, considering the budget given to the personnel of Diyanet and other Islamist organizations, graduating from an imam-hatip school and pursuing a career in religious affairs does not seem as bad as it did pre-AKP, which influences the young generations' goals leading to an Islam-based society according to AKP's Islamization doctrine for Turkey.

Controversies and Social Impact

Under AKP Diyanet has also grown almost exponentially the number of mosques it has restored or constructed, the most popular one being the one in the middle of Taksim Square. The Friday prayers' sermon themes and subjects have also taken a pro-AKP and anti-secular stance which further proves Diyanet's close affiliations with the AKP government to spread Islamization in Turkey. From the head of religious affairs, Ali Erbaş, having multiple Mercedes for his personal use to the dangerous ideologies imposed on children in Quran courses and children being sexually exploited in such courses, Diyanet's power and authority have had dangerous consequences for Turkey. It has not only pushed Turkey away from Article Two of the 1982 Constitution but also aided the formation of different dangerous Islamic sects with the relaxation of Islam. In the past decade, almost periodically there have always been different sects and their perilous activities on the news. Diyanet has denied the accusations of their involvement with different sects or covered the news up with their 'havuz medyasi' [pool media]. However, the numbers are there and the evidence is clear. With such an expansive budget and their control of not only religious schools but other types of religious education in and outside of schools has supported AKP's Islamization politics creating a new Turkey, almost opposite from the grounds and pillars under which Turkey was created by Mustafa Kemal.

Conclusion

In this paper, I argued that Diyanet's transformation under AKP rule reflects the wider Islamization of Turkey, posing a challenge to the country's secular foundations. The significant budget increases, expansion of religious education, and alignment with government policies have turned Diyanet into a powerful political and social institution. Not only has its growing influence reshaped education and public discourse, but it has also raised concerns about transparency, democratic governance, and the separation of religion and state. The increasing presence of religious ideology in public institutions signals a shift away from the principles in Turkey's Constitution.

Looking ahead, if this trajectory continues, Turkey may see a further entrenchment of Islam in governance, potentially leading to deeper societal polarization. The dominance of Diyanet could limit secular voices, reinforce conservative policies, and reduce state neutrality in religious affairs. However, potential political shifts, economic challenges, or public pushback may create resistance to this trend. The future of Turkish secularism will likely depend on whether alternative political forces and civil society can effectively counterbalance the expanding role of religion in the state.

References

Büyüktunca, E., Kaplıca, E., & Koray, K. (2024, January 11). Diyanet'in bütçe payı son 10 yılda rekor kırdı. *Doğruluk Payı*. Retrieved from https://www.dogrulukpayi.com/bulten/diyanet-in-butce-payi-son-10-yilda-rekor-kirdi on the 2.13.2024.

Çepni, O. (2020, February 28). Sayıları 16 bine ulaşan tarikat kurslarına Diyanet söz geçiremiyor. *Cumhuriyet*. Retrieved from https://www.cumhuriyet.com.tr/haber/sayilari-16-bine-ulasan-tarikat-kurslarina-diyanet-soz-geciremiyor-1723903 on the 1.24.2024.

Dalmiş, E. (2022). *Diyanet İşleri Başkanlığı'nın kurumsal varlığına ve meşruiyetine yönelik eleştirel söylemler üzerine analiz*. Unpublished Doctoral dissertation, Institute of Social Sciences, Marmara University, Türkiye. ProQuest Dissertations & Theses. https://www.proquest.com/docview/2828907033?pq-origsite=gscholar&fromopenview=true&sourcetype=Dissertations%20&%20Theses

Diyanet İşleri Başkanı Ali Erbaş Mercedes'ten inecek mi? (2023, November 19). *Sözcü*. https://www.sozcu.com.tr/diyanet-isleri-baskani-ali-erbas-mercedesten-inecek-mi-wp7866387 on the 2.16.2024.

Diyanet İşleri Başkanlığı kuruluş ve görevleri hakkında kanun, Kanun No. 633, 1965. *Resmî Gazete*. https://www.mevzuat.gov.tr/mevzuatmetin/1.5.633.pdf on 2.21.2024.

Gülalp, H. (2001). Globalization and political Islam: The social bases of Turkey's Welfare Party. *International Journal of Middle East Studies,* 33(3), 433–448.

Kap, D. (2014). Türkiye'de zorunlu din dersi uygulaması. *Akademik Perspektif*, 58–61.

Lord, C. (2018). *Religious politics in Turkey: From the birth of the Republic to the AKP*. Cambridge University Press.

T.C. Cumhurbaşkanlığı Strateji ve Bütçe Başkanlığı. (2024). 2024 *yılı merkezi yönetim bütçe kanunu teklifi ve bağlı cetveller*. https://www.sbb.gov.tr/wp-content/uploads/2023/10/2024-Yili-Merkezi-Yonetim-Butce-Kanunu-Teklifi-ve-Bagli-Cetveller.pdf

Turkish Constitution (1982), *Article 2*.

Ürkmez, A. (2023, June 28). Müftülüğün Kuran kursu, Nakşibendi medresesi çıktı. *Cumhuriyet*. Retrieved from https://www.cumhuriyet.com.tr/siyaset/muftulugun-kuran-kursu-naksibendi-medresesi-cikti-2094479 on 2.4.2024 on the 2.4.2024.

CHAPTER 4

DEMOCRACY AND ECOLOGY INTERACTION THROUGH QUINTUPLE HELIX ARCHITECTURE

Esra OVALI[1]

Abstract

In the quintuple helix architecture, the scope of ecology adds a new helix to the quadruple helix innovation system. Thus, democratic tendencies supported by university, industry, state, and public/civil society cooperation realize the free circulation of knowledge between the helix architectures. The advanced understanding of democracy, which provides knowledge circulation, encourages innovative thinking and creativity in society. This perspective, which centers art in the dimension of creativity, brings sophisticated initiatives to the agenda within ideas, products, services, organizations, and systems. Thus, knowledge evolves according to needs and demands on its journey between systems and subsystems. The environmental sensitivity of societies that provide access to innovative knowledge diversity in the interaction of art, democracy, and creativity is high. It increases the quality of knowledge in the relationship of ecology, society, and democracy integration. This process speeds up the transition to knowledge democracies and economies. The concept, which reveals the characteristics of advanced societies, matches environmental awareness with economic development

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and sustainability through the leading role of knowledge democracy. The comprehensive framework of the quintuple helix system offers solutions to global problems through multi-dimensional collaborations.

Key words: Quintuple, Innovation, Democracy

1. Introduction

As university knowledge and innovations resulting from the transformation of this knowledge have gained commercial quality, the sustainable contributions of academic outputs to the industrial environment have increased (Etzkowitz, 1990). In this process, the interdisciplinary framework of the triple helix approach, which defines the multi-layered structure between the university, industry, and the state, has formed the basis for the quadruple and quintuple innovation systems architecture (Carayannis et al., 2017; Keskin and Ovali, 2022). Here, the triple helix is a core model that explains the application of knowledge production (Eigelsreiter, 2017; Mitterlehner, 2014; Galan et al., 2018). Modes 1 and 2 are effective in knowledge production in the operation of Triple Helix Innovation Systems. Universities prioritize research concerns in Mode 1, which adopts the linear innovation model. Thus, the innovative results produced by university research turn into an efficient source for corporate commercial success (Carayanniz and Campbell, 2014).

Mode 2, which intertwines with the non-linear innovation model, overlaps with diversity, heterogeneity, and interdisciplinary approach in the knowledge dimension of production and application (Gibbons et al., 1994). Mode 3, proposed by Carayannis and Campbell (1994), comprises media and culture-focused public components within the triple innovation system. Thus, it composes the essential dynamics of the quadruple helix innovation system. Throughout the scope of Mode 3, after being produced, knowledge continues its journey between the helices and its evolution within the framework of technological developments and social, economic, and commercial needs and expectations. The quintuple helix system is the quadruple helix architecture extension. It integrates knowledge and innovation production with nature. Ecological transformation is a new dimension within the framework of society and economy. The framework represents further development and evolution, uniting ecology into knowledge production and innovation approaches (Carayannis and Campbell 2010; Carayannis et al., 2012) (Figure 1).

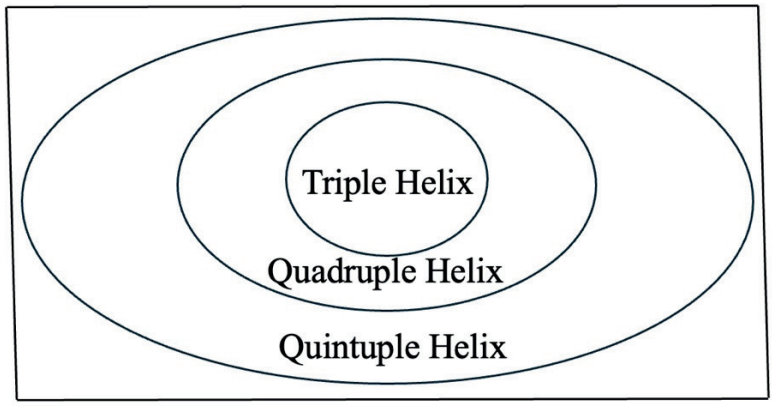

Figure 1. Conceptual Framework from Triple Helix to Quintuple Helix

2. Triple Helix Transformation Into Quadruple Helix

2.1. Democracy And Innovation Interaction Between Helices

The Triple Helix model is crucial in the relationship between knowledge production and innovation production. Democracy is a requirement for the development of knowledge production and innovation systems. Therefore, triple helix structures that adopt the knowledge economy comprise democracy directly in knowledge production. In the triple helix approach, the evolution of knowledge transforms the economic activities according to the needs and demands of the helices. The quadruple helix framework, which is formed by adding the public component to the basis of media and culture, opens up the interaction of art, artistic research, and art-based innovation, democracy, and knowledge democracy to the discussion (Carayannis et al., 2018; Bast et al., 2019; Keskin and Ovali, 2022). Thus, the quadruple helix emphasizes the dimension of democracy that supports knowledge production (Campbell, 2019). Democracy is a demand in knowledge production and innovation initiatives, which includes multi-stakeholder regional and global relations (Carayannis and Campbell, 2014). In the quadruple helix knowledge production process, knowledge economy and social transformation provide sustainable development (Dubina, Carayannis, and Campbell, 2012).

Mode 3 creates strong ties between the helices within the scope of top-down government, university and industry policies, and bottom-up civil society and public initiatives. This architecture reveals a sustainable

development understanding combining innovation, entrepreneurship, and democracy. In the quadruple helix architecture, the relationship between culture and technology encourages inventions. Thus, the media will mobilize innovative movements in the national innovation system through the media, and the adaptation process of the public component will accelerate (Carayannis and Campbell, 2009). The knowledge transferred between the helices emphasizes the non-linear knowledge production and dissemination process with the advanced architecture of the quadruple helix systems. So, reform, strategy, policy and implementation processes, and the transformation of the economy, society, and democracy are essential. Then, the quadruple helix approach integrates knowledge, knowledge production, and innovation with the scope of democracy (Carayannis and Pirzadeh, 2014; Campbell and Carayannis, 2016; Eigelsreiter, 2017). In this flow, the pluralism of knowledge and innovation comes to the fore. This approach integrates the idea of 'Knowledge Democracy' that reveals pluralism in knowledge production interacts with pluralism in a democracy (political pluralism). Democracy, knowledge production, and innovation systems evolve together (Campbell and Carayannis, 2016).

The quadruple helix innovation system is the further development of the triple helix approach within the framework of the knowledge society and knowledge democracy approach (Dubina et al., 2012). In addition, the quintuple helix approach transforms the knowledge generated by environmental problems into innovative solutions that provide economic development. Emphasizing the socio-ecological aspects of the natural environment, this model has an interdisciplinary analysis of sustainable development and social ecology. In this framework, social ecology focuses on the interaction, joint development, and co-evolution of society and nature (Carayannis and Campbell, 2010). The quadruple helix architecture includes the relationships between innovative knowledge, the public, and the media in the triple helices with a sophisticated perspective through culture-oriented public and media helices. Here, the media undertakes the transfer of knowledge transformed into innovation to the social layers. In the democratic ecosystem, the fluidity of knowledge will realize sustainable economic development and prepare the ground for social improvement compatible with developments. Therefore, the quadruple helix architecture offers innovative suggestions for knowledge and democracy with its broad conceptual and theoretical framework suitable for application.

2.2. Art And Knowledge Interaction

The knowledge transitions between the helices, art, and artistic research encourage social layers to innovation and realize it in line with needs through creativity. Therefore, research and innovation provide an opportunity for an interdisciplinary approach to creation and advancement within the framework of an artistic perspective. In this development, the direction chosen by the society in democratic processes contributes to the interaction between art and knowledge. Thus, the knowledge pool enriched by the artistic perspective meets social needs at the highest level. Art motivates the creativity of society toward the increase in the demand for democracy, enabling the diversification and acceleration of knowledge and innovation processes at the heart of quadruple-helix architecture. Thus, art and artistic research guarantee the production of scientific knowledge in different variations that evolve in line with the demands of varied layers of society. In this process, which supports the inclusiveness of the national innovation system, the development of knowledge in the art and the need for democratization of the society reflect intertwined understandings (Campbell and Carayannis, 2013). Therefore, the innovation and creativity approach at the social level reveals a perspective beyond sustainability and economic development.

The innovation dimension guided by the artistic perspective shows the results of the desire and efficiency of the society in the creative and productive thought on the way to economic development. Therefore, art emphasizes the critical role of the innovation ecosystem towards meeting the diversity of knowledge with a democratic management approach and society (Carayannis and Campbell, 2011). At this stage, the evolution of knowledge through artistic research encourages the formation of a social layer that has adopted innovation. The source of the courage of the innovative population is the pluralism, heterogeneity, and creativity provided by the democratic environment (Carayannis and Rakhmatullin, 2014). Innovation shaped at the center of art liberates innovation from the priority of economic interests and goals. Thus, art, which supports creativity in knowledge production and innovation, carries the qualities of sustainable growth to a much broader scope (Carayannis and Campbell, 2011). The co-evolution of the knowledge society and democracy occurs when art develops research, innovation, and creativity that advances society and encourages the formation of a unique class within the population. Since creativity is associated with pluralism and heterogeneity in the dimensions of knowledge and innovation in this process, innovation without creativity is not sustainable in the long term (Carayannis and Rakhmatullin, 2014) Figure 2)

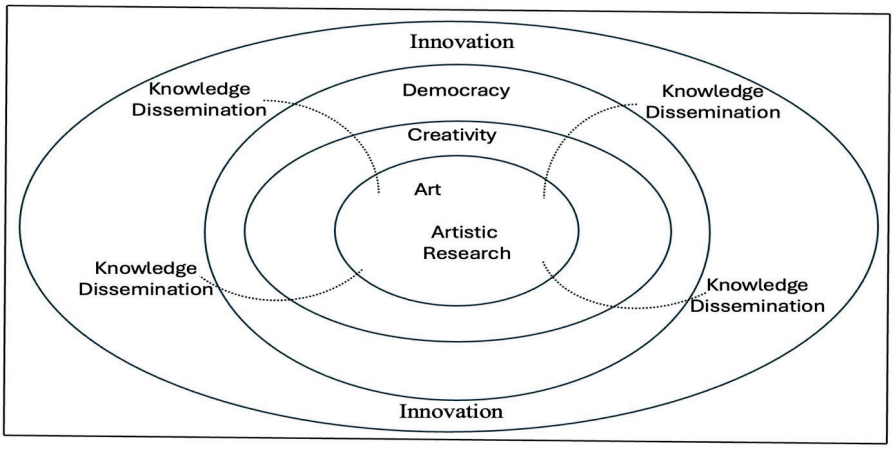

Figure 2. The Relationships Between Art, Creativity, Democracy, & Innovation in Quadruple Helix Architecture

3. Environment And Democracy Transition Through Quintuple Helix Dynamics

The quintuple-helix model adds the ecology layer to the cluster as a new area of responsibility (Carayannis and Campbell, 2010). Quadruple and quintuple helix innovation systems optimize and categorize processes with advanced society and economy design. Democracy and ecology concerns are the cornerstones of architecture. Democracy is the trigger of innovations. When a society has an advanced knowledge democracy, it increases innovation production (Campbell, 2019). The quintuple helix innovation framework has an extended collaboration network among helix architectures. The structure emphasizes the five main dimensions of advanced societies that bring together art, creativity, knowledge, and innovation within the scope of sustainability and democratic governance. Ecology, public, state, university, and industry define these components. Hence, the close ties between the helices and the exchange of knowledge for production play an active role in the digital transformation of knowledge economies and societies. This interaction contributes to the democratic perspective and sustainability of the design framework (Campbell et al., 2015). Democratic understanding is necessary for knowledge and innovation to lead to sustainable economic development (Campbell, 2019). Further, ecological sensitivity, the source of knowledge and innovation, is indispensable for the continuation of life. Environmental protection sensitivity encourages an innovative approach

at the same rate (Carayannis et al., 2021). Thus, democracy and ecology are interactive categories for quadruple and quintuple helix architectures that offer solutions to socio-economic, socio-technical, and socio-political problems with the goals of knowledge democracy and knowledge economy.

Then, the starting point of the quintuple helix of innovation is the triple and quadruple helices. In architecture, the circulation of knowledge between the helixes as democratic processes evolves within the framework of solving various problems (Carayannis et al., 2021). Technology has advantages and disadvantages in this knowledge production, distribution, circulation, and transformation. The harmful effects decrease between the helices concerns how these solutions integrate into the architecture. Thus, the cyclical relationships between the helixes create a systemic perspective. Hence, the government puts forward innovative policies toward innovation and technological development. It recommends digital investments in the public and private sectors to advance public services (Figure 3).

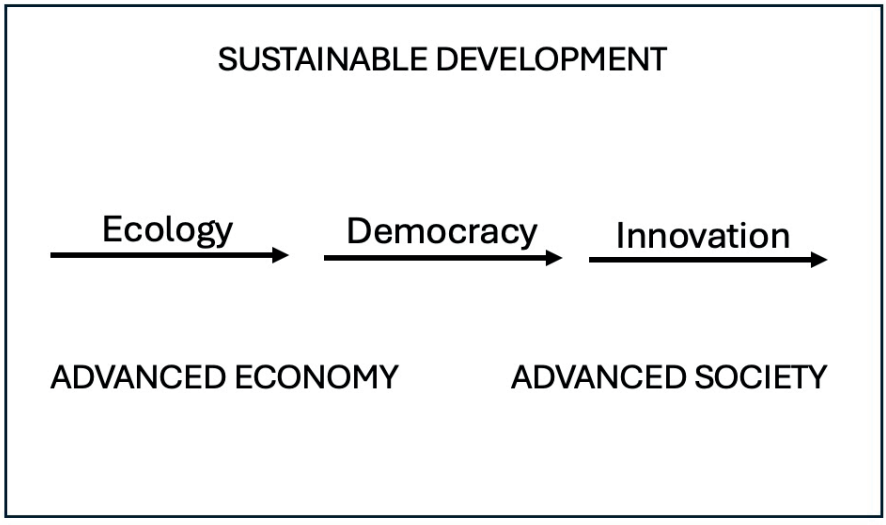

Figure 3. Conceptual Framework of the Relationship between Ecology and Innovation

The quintuple helix architecture presents suggestions that ensure harmony with the climate and environment and diversity preservation in living spaces through the non-linear innovation model (Carayannis, Campbell, 2010). In the quintuple helix architecture, the innovation process occurs through the circulation of knowledge between the public helixes focused on the education

system, economic system, political system, natural environment, media, and culture. Thus, societies and economies provide access to innovation and knowledge accumulation that expedites sustainable development. Protecting the natural environment supports the development of the knowledge economy (Carayannis et al., 2021). In the quadruple helix, the assimilation of knowledge through Mode 3 enables the development of social-environmental sensitivity. Thus, knowledge and innovation contextualized by society become a significant part of ecological diversity. So, the environmental connection of knowledge is efficient (Fischer-Kowalski and Haberl, 2007). Thus, the quintuple helix understanding maintains sustainable connections in the interaction of creativity, innovation, and democracy (Campbell and Barth, 2009) (Figure 4).

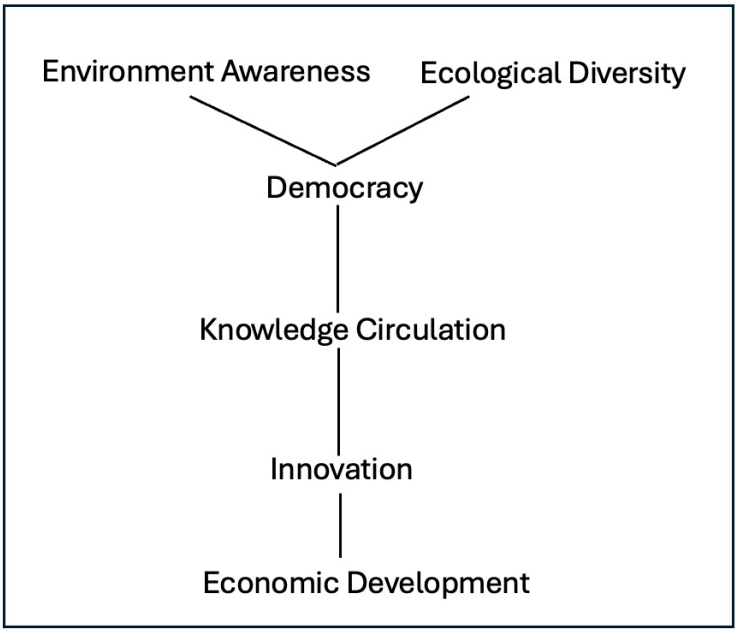

Figure 4. Conceptual Framework of the Relationship Between Ecology-Democracy-Economic Development

Conclusion

Environmental awareness and sensitivity are an efficient component for the future success of nations. Thus, ecological interest in the social dimension addresses the relationships between society and nature (Haberl

et al., 2004). This perspective, which overlaps with the quintuple helix innovation architecture, determines the socio-ecological scope of economy and democracy. Environmental protection policies are crucial for the sustainability of humanity and civilization (Carayannis and Campbell, 2019). The climate of democracy for social, cultural, economic, and political progress extends the evolution of innovation systems. Adaptation policies for climate change strengthen the relationship between democracy and the environment.

Quadruple and quintuple helix innovation systems comprise democracy and ecological sensitivity. Democratic understanding is a necessity in quadruple and quintuple helix systems. Democracy facilitates innovation and focuses on the co-evolution of knowledge dissemination (Campbell et al., 2015; Campbell, 2019). From this perspective, knowledge circulates freely between the helices and causes innovations that transform products, services, processes, business traditions, individuals, societies, institutions, and inter-institutional relations. It encourages the pluralism of structures and processes where knowledge and innovation integrate into networks (Carayannis and Campbell, 2012).

The helices combine research-oriented knowledge production and application, targeting innovation with ecology. The model that promotes development through ecology, knowledge, and innovation strengthens the cooperation of the economy, society, and democracy (Carayannis et al., 2012). Here, knowledge-based democracies have a crucial role in alleviating global crises. Democracies and societies should generate progressive solutions through art-supported creativity and innovation and transform their identity according to changing conditions to fulfill this task flawlessly. This new quality management concerns the development of knowledge, expertise, and innovation by nature (Carayannis and Grigoroudis, 2022). Thus, in advanced democracies, the quality of life comes true in harmony with the natural environment and sustainable development. Ultimately, knowledge, expertise, innovation, and nature bring sustainable development to the agenda as indispensable parts of a multidimensional perspective (Campbell, 2009. These dimensions in knowledge societies and democracies develop together with society and continue their evolution between helices (Carayannis and Campbell, 2014).

Democracy is a mutual value in these interactions. Ecology and environmental awareness are knowledge sources that multiply innovations (Carayannis et al., 2021). Expertise and innovation development are sustainable with democratic participation (Campbell, 2019). Thus,

democracy and ecology are central to solution proposals in quadruple and quintuple systems. The quintuple architecture, which grasps the triple and quadruple frameworks, generates answers to different problems of society by benefiting from the free circulation and transformation of knowledge within the framework (Carayannis et al., 2021). Digital policies and investments facilitate results in this process. Here, the state, university, industry, and civil society can put technology at the service of society by eliminating its disadvantages. The state designs constructive policies to encourage technology-supported innovations. United Nations (UN) measures the knowledge technology trends of countries through the E-Government Development Index (EGDI). According to the index, citizens living in 66% of member states benefit from online services. However, digital service levels vary by region. According to EGDI, Denmark is the global leader, while Africa suffers from interrupted investments. Research shows that digital transformation is inadequate in Africa. Infrastructure deficiencies cause inequality between countries (Carayannis, Campbell and Grigoroudis, 2021).

The quintuple helix approach draws attention to the quadruple helix and ecology framework, which argues that an advanced level of knowledge and democracy is necessary for innovative feedback. Knowledge should circulate freely in the system to generate new business areas and define sophisticated solutions to social, ecological, or economic problems. Knowledge, which transforms according to needs, demands, and expectations in its journey between the spirals of the state, university, industry, civil society, and the public and encourages innovation at different levels and dimensions, leads the development of knowledge democracy. However, solution proposals for ecological problems require large-scale collaborations. Environmental problems are a global reality that requires long-term commitments. In this context, the unifying message of the quadruple and quintuple helix systems in the whole of art, creativity, innovation, politics, environment, and democracy has the potential to be adaptable to national and international cooperation projects (Carayannis and Campbell, 2022). Democracies that facilitate innovation support the evolution and development of knowledge. So, democracies position ecology as a driving force for further development or improvement. The quality of democracy is substantial in solving economic, social, and ecological problems.

The advancement level in society concerns the free flow of knowledge that produces solutions, lower levels of corruption, advanced scientific and technical capacity, and dynamic and innovative economies [Povitkina, 2018]. Therefore, a holistic environment-democracy-innovation connection with

the quadruple and quintuple helix innovation framework is striking. From this perspective, intertwined democracy, innovation, and ecology (climate) realize sustainable development (Campbell, 2019). So, advanced knowledge manifests in various knowledge modes and innovations that require political pluralism. It is a distinctive feature and component of democracy(Carayannis and Campbell, 2021).

References

Campbell, D. F. J., Carayannis, E. G., & Bast, G. (2019). Conclusion: The future of the future of education and labor, 245–253, in: Gerald Bast / Elias G. Carayannis / David F. J. Campbell (eds.) (2019). The Future of Education and Labor. New York, NY: Springer. (https://www.springer.com/ gp/book/9783030260675)

Campbell, D. F. J. (2019). Global quality of democracy as innovation enabler. Measuring democracy for success. New York, NY: Palgrave Macmillan. (https://doi.org/10.1007/978-3-319-72529-1 and https://www.palgrave.com/de/book/9783319725284)

Campbell, M. (2019). *Halfbreed*. McClelland & Stewart

Campbell, D. F., Carayannis, E. G., & Rehman, S. S. (2015). Quadruple helix structures of quality of democracy in innovation systems: the USA, OECD countries, and EU member countries in global comparison. *Journal of the Knowledge Economy*, *6*, 467-493.

Carayannis, E. G., Draper, J., & Crumpton, C. D.(2024). Democratic Engagement in Sustainable Energy Innovation: Applying the Quintuple Innovation Helix to Manage Accelerating Fusion Energy Through an IEA-Backed Global Commission. IEEE Transactions on Engineering Management, 71, 14293-14306, doi: 10.1109/TEM2024.3428975.

Carayannis, E.G., Dezi, L., Gregori, G., Calo, E. (2022). Smart Environments and Techno-centric and Human-Centric Innovations for Industry and Society 5.0: A Quintuple Helix Innovation System View Towards Smart, Sustainable, and Inclusive Solutions. Journal of the Knowledge Economy, **13**, 926–955. https://doi.org/10.1007/s13132-021-00763-4.

Carayannis EG, Campbell DFJ and Grigoroudis E (2021) Democracy and the environment: How political freedom is linked with environmental sustainability. Sustainability 13(10): 5522 https://doi.org/10.3390/su13105522.

Carayannis EG (2020) Democracy and the environment are endangered species. Reconfiguring today for a better tomorrow: theories, policies, practices and politics for smart growth. Interview with Carayannis EG by Koldbye C. Research Reconfiguring and Innovation Constellations. Brussels. Project with funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 788047. Available at: http://riconfigure.eu/wp- content/uploads/2020/01/ Interview-with-Elias-Carayannis_2020_Final.pdf.

Carayannis, E. G., Grigoroudisn, E., Campbell, D. F. J., Meissner, D., & Stamati, D. (2018). The ecosys- tem as helix: an exploratory theory-building study of regional co-opetitive entrepreneurial ecosystems as quadruple/quintuple helix innovation models. R&D Management, 48(1), 148–162. (https:// doi.org/10.1111/radm.12300/full)

Carayannis, E.G., Grigoroudis, E., Campbell, D.F.J., Meissner, D. & Stamati, D. (2017). The ecosystem as helix: An Exploratory Theory-Building Study of Regional Co-opetitve Entrepreneural Ecosystems as Quandruple/Quintuple Helix Innovation Models. R&D Management, 48(1): 148-162. doi: 10.1111/radm.12300.

Campbell, D. F. J., & Carayannis, E. G. (2016). Epistemic governance and epistemic innovation policy. *Technology, Innovation and Education, 2*:2 (pp. 1–15). (https://doi.

org/10.1186/s40660-016-0008-2) (http:// technology-innovation-education.springeropen.com/articles/10.1186/s40660-016-0008-2)

Campbell, D. F., & Barth, T. D. (2009). Wie können demokratie und demokratiequalität gemessen werden? modelle, demokratie-indices und länderbeispiele im globalen vergleich. *SWS-Rundschau*, *49*(2), 209-233.

Carayannis, E.G., Campbell, D.F.J. (2015). Art and Artistic Research in Quadruple and Quintuple Helix Innovation Systems. In: Bast, G., Carayannis, E., Campbell, D. (eds) Arts, Research, Innovation and Society. Arts, Research, Innovation and Society. Springer, Cham. https://doi.org/10.1007/978-3-319-09909-5_3

Carayannis, E. G., & Rakhmatullin, R. (2014). The quadruple/quintuple innovation helixes and smart specialisation strategies for sustainable and inclusive growth in Europe and beyond. *Journal of the Knowledge Economy*, *5*, 212-239.

Carayannis, E. G., & Campbell, D. F. J. (2014). Developed Democracies versus Emerging Autocracies: Arts, Democracy, and Innovation in Quadruple Helix Innovation Systems. Journal of Innovation and Entrepreneurship, 3:12. (http://www.innovation-entrepreneurship.com/content/3/1/12)

Carayannis, E. G., & Pirzadeh, A. (2014). The knowledge of culture and the culture of knowledge. Implications for theory, policy and practice. Houndmills: Palgrave Macmillan. (http://www.amazon.de/The-Knowledge-Culture-Implications-Practice/dp/1403942439/ref= sr_1_1 ?ie =UTF8&qid=1403080044& sr=81&keywords=carayannis+ knowledge+of+culture)

Campbell, D. F., Carayannis, E. G., Barth, T. D., & Campbell, G. S. (2013). Measuring democracy and the quality of democracy in a world-wide approach: models and indices of democracy and the new findings of the "Democracy ranking". *International Journal of Social Ecology and Sustainable Development (IJSESD)*, *4*(1), 1-16.

Carayannis, E. G., & Campbell, D. F. J. (2012). Mode 3 Knowledge Production in Quadruple Helix Innovation Systems. 21st-Century Democracy, Innovation, and Entrepreneurship for Development. (Springer- Briefs in Business.). New York, NY: Springer. (http://www.springer.com /business + %26+management/book/978-1-4614-2061-3 and http://www.springer.com/cda/ content/document/cda_ downloaddocument/9781461420613-c1.pdf?SGWID=0-0-45-1263639-p174250662)

Carayannis, E.G. & Campbell, D. F. J. (2011). Open Innovation Diplomacy and a 21st Century Fractal Research, Education and Innovation (FREIE) Ecosystem: Building on the Quadruple and Quintuple Helix Innovation Concepts and the Mode 3 Knowledge Production Sytem. Journal of the Knowledge Economy, 2, 327-372. doi: 10.1007/s13132-011-0058-3.

Carayannis, E. G., & Campbell, D. F. (2009). Mode 3 and Quadruple Helix: Toward a 21st Century Fractal Innovation Ecosystem. International Journal of Technology Management, 46, 201-234. https://doi.org/10.1504/IJTM.2009.023374

Carayannis, E. G. & Campbell, D. F. J. (2010). Triple helix, quadruple helix and quintuple helix and how do knowledge, innovation and the environment relate to each other? A proposed framework for a trans-disciplinary analysis of sustai-

nable development and social ecology. International Journal of Social Ecology and Sustainable Development, 1(1), 41–69. (https://www.igi-global.com/article/triple-helix-quadruple-helix-quintuple/41959)

Carayannis, E.G. & Campbell, D.F.J. (2006). Mode 3: meaning and implications from a knowledge systems perspective. Knowledge Creation, Diffusion, and Use in Innovation Networks and Knowledge Clusters. A Comparative Systems Approach across the United States, Europe and Asia. Westport, Connecticut, London: Praeger.

Dubina, I. N., Carayannis, E. G., & Campbell, D. F. (2012). Creativity economy and a crisis of the economy? Coevolution of knowledge, innovation, and creativity, and of the knowledge economy and knowledge society. *Journal of the Knowledge Economy*, *3*, 1-24.

Etzkowitz, H. (1990). The Second Academic Revolution: The Role of the Research University in Economic Development. In: Cozzens, S.E., Healey, P., Rip, A., Ziman, J. (eds) The Research System in Transition. NATO ASI Series, vol 57. Springer, Dordrecht. https://doi.org/10.1007/978-94-009-2091-0_9

Etzkowitz, H. (1990). The second academic revolution: The role of the research university in economic development. In The research system in transition (pp. 109-124). Dordrecht: Springer Netherlands.

Eigelsreiter, B. (2017). Consumerization of IT, cyber-democracy and cyber-crime: The inherent chal- lenges and opportunities of different ends of a continuum. In G. Elias & Carayannis , David F. J. Campbell, Marios P. Efthymiopoulos, (Eds.), Handbook of cyber-development, cyber-democracy, and cyber-defense (pp. 565–594). Springer.

Fischer-Kowalski, M., & Haberl, H. (2015). Social metabolism: a metric for biophysical growth and degrowth. In Handbook of ecological economics (pp. 100-138). Edward Elgar Publishing.

Fassin, Y. (2000). The Strategic Role of University-Industry Liaison Offices. *The journal of research administration, 1*, **31-41.doi: https://doi.org/10.1080/09537325.2017.1337885**

Galan, M., Campbell, D. F. J., & Carayannis, E. G. (2018). The Role of Information and Communica- tion Technology (ICT) in the Governance of Energy Access: Exploring Application of Quadruple and Quintuple Helix Innovation Theory in Technology Transfer, 59–85, in: Carayannis, Elias G. / David F. J. Campbell / Marios Panagiotis Efthymiopoulos (eds.): Handbook of Cyber-Develop- ment, Cyber-Democracy, and Cyber-Defense. New York, NY: Springer.(https://www.springer.com/de/book/9783319090689and https://doi.org/10.1007/9783 -319- 06091-0)

Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P., & Trow, M. (1994). The New Pro- duction of Knowledge. The Dynamics of Science and Research in Contemporary Societies. London: Sage.

Johnson, B. H., & Lundvall, B. Å. (1991). Flexibility and institutional learning. Flexibility and Institutional Learning. (pp. 33-49). Edward Elgar Publishing. https://doi.org/10.3152/030234 211X13070021633161.

Keskin H., Ovalı, E. (2022). Dörtlü ve beşli sarmal üniversite-sanayi iş birliği modelleri. BMIJ, 10(1), 447-461. doi: https://doi.org/10.15295/bmij.v10i1.2031.

Kübler, D. (2015). De-nationalization and multi-level governance. In Comparative Politi-cs (pp. 55- 89). Edward Elgar Publishing. doi: 10.1111/1475-6765.12613.

Mitterlehner, B. (2014). Cyber-Democracy and Cybercrime: Two Sides of the Same Coin, 207–230, in: Elias G. Carayannis / David F. J. Campbell / Marios P. Efthymiopoulos (eds.): Cyber-development, cyber-democracy and cyber-defense. Challenges, Opportunities And Implications For Theory, Pol- icy And Practice. New York, NY: Springer.

Polanyi, M. (1962). Tacit Knowing: Its Bearing on Some Problems of Philsophy. Physical Review Journals. 34, 601. DOI: https://doi.org/10.1103/RevModPhys.34.601

von Hippel, E. Democratizing innovation: The evolving phenomenon of user innovation. JfB **55**, 63–78 (2005). https://doi.org/10.1007/s11301-004-0002-8

CHAPTER 5

SECTORAL EFFECT OF THE ARTIFICIAL INTELLIGENCE

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Abstract

In recent years, artificial intelligence has proven to be one of the most important technological advances, helping companies stay competitive and achieve efficient work processes. AI can also be used to develop new business models. The applications of AI range from data analysis and the optimization of business processes to the development of new products and services. In the era of digitalization, AI not only brings efficiency but also deeper insights into market trends and customer needs. Furthermore, AI has the potential to enable entirely new business models by enabling companies to offer personalized services and products that are specifically tailored to individual customer needs. The automation of business processes is one of the key application areas of artificial intelligence. Companies are increasingly

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relying on AI-supported tools to perform routine tasks more efficiently. This development relieves employees of monotonous tasks, allowing them to focus on more strategic activities. However, these developments also bring about some difficulties and transition problems in the business world and labor market. In this study, this situation is examined with a scientific systematic.

Keywords: AI, Labor Market, Business, Robot, Economy

Introduction

AI-based systems are considered promising innovations that will complement the physical performance of machines with mental learning and thinking abilities. The first successes in cognitive tasks can be seen, for example, in AI-based systems such as Google, robots partially equipped with human skills, and even autonomous weapons systems. However, the potential applications of AI are still in the development stage. In the medium term, this technology is expected to lead to a radical transformation in all areas, with far-reaching consequences for economic and social life. First of all, the development of AI is parallel to technological developments. In addition, AI has effects on employment and economic inequality. The effects of AI on productivity and economic growth are gaining importance in this context. In addition, the competition, market structures, income distribution, and innovation effects of AI are increasingly developing.

The development of AI can be understood as the last wave of automation that has continued since industrialization (Gordon 2015). While the focus of automation in the late 19th and early 20th centuries was to replace physical human labor with machines, artificial intelligence is an attempt to emulate human-like perception and decision-making structures. In other words, to enable machines to perform certain tasks as well as or better than a human.

Theoretical and Conceptual Background

Artificial intelligence is a system or machine that imitates human intelligence in order to perform given tasks and can improve itself iteratively in line with the information it collects. Artificial intelligence appears in many ways in many areas in today's world. Artificial intelligence is related to any special form or function as well as the process of enhanced thought and data analysis. Although artificial intelligence presents disaster scenarios regarding human-like robots with high-level functions taking over the world, the main purpose of artificial intelligence is not to replace humans. The most

basic purpose of artificial intelligence is to contribute to these abilities by significantly improving human abilities. For this reason, artificial intelligence is seen as an exceptionally valuable commercial asset.

Artificial intelligence, which occupies today's changing and developing world of technology and is one of the areas that receives more and more investment every day, has started to be used in many parts of the world. Many basic advantages of using artificial intelligence-supported devices in different business groups have already begun to be seen. Artificial intelligence robots, which eliminate problems such as life and work safety and can work 24/7, provide more efficiency than humans, while also reducing human labor and giving people more time to spend on themselves. For this reason, artificial intelligence-supported devices will be much more preferred in the business world of the future and will be effective in managing work in many business areas. Artificial intelligence robots, which will be humanity's greatest assistants, will also be used a lot in space studies and the health sector in the future.

The Focus of Research

The professions that will be most protected from AI are expected to be highly skilled manual workers. Office jobs will be most affected by this process. In order to prepare for this change, it is important for people to develop their skills in AI. This needs to be done from school level to university level, and in this respect, it is of great importance for the public to provide free re-education. The professions that will be least affected by the AI change will be jobs that require human contact, such as caregiving and hairdressing. Therefore, the purpose of this article is to evaluate the effects of artificial intelligence on the business world and the labor market. Thus, it is aimed to contribute to the decision-making processes in the business world and the labor market. As a result, both businesspeople and workers can evaluate the opportunities offered by artificial intelligence and take the necessary precautions against possible risks.

The research questions of this study are formulated as follows.

- According to which factors is the development process of artificial intelligence shaped?
- What are the significant effects of artificial intelligence on the business world and the labor market?

The Effects of Artificial Intelligence on Business and Employment Productivity

Digital innovations such as artificial intelligence can lead to increased productivity and reduced costs in production, as well as encouraging product innovation and enabling new business models, leading to higher growth rates. However, according to studies conducted so far, this growth effect is far below expectations. Accordingly, despite the increased automation of artificial intelligence, productivity growth rates in developed countries have not increased significantly in the last decade (Zysman & Kenney, 2018).

On the other hand, according to technology optimists, artificial intelligence is seen as a groundbreaking development in terms of production and productivity. Accordingly, it is assumed that the use of artificial intelligence will reduce production costs and create a productivity-increasing effect (Acemoglu/Restrepo (2017). According to the data obtained by PwC, which examined half a billion job postings from 15 countries to reveal the effects of artificial intelligence, artificial intelligence directly affects the productivity of employment and business. This is a 4.8 percent increase in job productivity in sectors exposed to artificial intelligence. On the other hand, there was a 27 percent decrease in employment in occupations exposed to artificial intelligence. However, there was a 25 percent positive change in skills in occupations exposed to artificial intelligence. In addition, the wages of employees with artificial intelligence skills increased by 25 percent compared to other employees (PwC, 2024).

Impacts on Employment

The International Monetary Fund (IMF) warned in its report titled "Artificial Intelligence and the Future of Work" published on January 14 that artificial intelligence will affect 40 percent of global employment and that this trend could worsen income inequality between countries. The report indicated that this rate could rise to 60 percent in developed economies, and that artificial intelligence is preparing to profoundly change the global economy and likens this situation to a new industrial revolution (IMF, 2025).

The focus of economic discussions on the impacts of AI is primarily on whether employment impacts can be expected and, if so, what these impacts will be. On the other hand, the substitution of labor-intensive production processes by capital-intensive production processes can be expected to lead to a decrease in labor demand, especially in low- and medium-skilled sectors where the proportion of routine work is high (ILO, 2023). However,

the introduction of new technologies can also lead to higher productivity, lower prices and, ultimately, an increase in overall demand. This can have a positive impact on labor demand. In combination with newly created activities, this can lead to negative employment impacts in the long term, with (over)compensation in the affected occupational areas (Cham. Wirtz, Weyerer & Geyer, 2019).

It is estimated that approximately 60 million workers will be directly replaced by intelligent industrial robots by 2030. It is assumed that approximately 60 percent of occupations involve activities that can be automated by at least one third and are therefore partially substitutable. Dengler and Matthes (2018) reach a similar conclusion, assuming that approximately 25 percent of all jobs could be replaced by automation at least to 70 percent. In contrast, studies that consider both employment losses and gains produce significantly more optimistic results. For example, McKinsey's (Global Institute 2017) general study concludes that approximately ten million additional jobs will be created by 2030. However, approximately 9 million of these workers will be engaged in other activities due to automation processes. Acemoglu/Restrepo (2018) also conclude that greater robot density has negative effects on employment.

Bessen (2018), who uses a demand model based on the US textile, steel, and automotive industries, shows that the impact of AI on employment is primarily determined by the price elasticity of demand. Productivity-enhancing technologies lead to higher employment in industries where demand for the goods produced there is sufficiently elastic (Eurostat, 2024). Regardless of the differences between loss-based and overall studies, most of the research assumes that automation risks depend crucially on the type of activity. Accordingly, jobs in production, administration, sales, and logistics and transport services, which have a high routine component, are particularly affected by automation. In contrast, jobs that require the understanding and perception of irregular, non-linear problems, such as repair, installation, and maintenance work, have a medium risk of being automated. Jobs that require creativity and social intelligence or skills, such as jobs in education, science, art, media, or healthcare, are least affected by automation. Furthermore, Frey and Osborne (2017) found a strong negative correlation between educational level and salary and the risk of being replaced by automation. A study by the management consultancy PwC (2017) also shows that jobs performed by men have a higher risk of automation, 34 percent than jobs primarily performed by women, 26 percent.

Effects on Economic Inequality

However, as in previous phases of technological upheaval, significant changes in the employment structure are to be expected. The negative effects of automation will primarily affect low- and increasingly also medium-skilled workers, while according to Dauth et al. (2017), highly skilled workers may even experience wage increases associated with automation. This would further exacerbate the already existing divergence between average incomes of the highest- and lowest-skilled workers. The extent to which the intensive use of AI in industry or other sectors affects economic inequality is also currently a central topic of debate. For the American researchers Korinek/ Stiglitz (2017), the question of its effects on income distribution is the most important in the discussion about AI. The authors warn that the spread of AI or other labor-substituting technologies will only lead to a general increase in prosperity if the resulting benefits are redistributed. Otherwise, workers with average incomes would not only receive an ever-decreasing share of national income but would also be worse off in absolute terms. Acemoglu/Restrepo (2018) also reach this conclusion, highlighting the inequality-increasing nature of new technologies (Acemoglu & Restrepo, 2017).

The latter is based on the increase in real incomes, especially among highly qualified professionals in the upper income brackets, and the simultaneous job losses of low- or marginally qualified professionals in the lower income brackets. The authors also point out that – if this inequality cannot be effectively addressed – social resistance to technological developments (even those that increase productivity) can be expected. Goolsbee (2018) points out that AI applications require enormous amounts of data and that new inequalities can therefore arise related to the origin of these data volumes. For example, AI applications can increase inequalities between rural and urban areas, buyers and sellers, and low- and high-income groups. The question of the effects of AI on economic inequality is undoubtedly significant and is playing an increasingly important role in public discourse. Topics closely linked to AI, such as the introduction of a universal basic income, have also become the subject of economic debate (see also Goolsbee 2018; Geiger, Prettner, and Schwarzer 2018). However, the precise effects of automation and the use of artificial intelligence on economic inequality cannot yet be quantified. Further research in this area is therefore needed (Acemoglu & Restrepo, 2018).

Effects on Competition, Market Structure, and Innovation

In addition to the potential effects of AI on economic growth, productivity, and employment, the impacts on other areas are increasingly becoming the focus of academic debate. In addition to the many advantages likely associated with the use of AI, the potential risks of the technology for competition and consumers are also increasingly being discussed, as outlined below. The recently published main report of the Monopolies Commission (2018) examines in detail the potential anti-competitive effects of the use of pricing algorithms, particularly with regard to the risk of collusion.4 The Commission concludes that in data-intensive economic sectors, pricing algorithms can facilitate collusion because collusive behavior is automated and technically facilitated. Detecting collusive behavior is difficult for antitrust authorities because self-learning algorithms eliminate the need for explicit anti-competitive agreements and make it difficult to prove potential overpricing (Alpago, 2018). With regard to the demand side, Andre et al. (2017) examine the consequences of AI on consumer decision-making autonomy in their interdisciplinary work (Webster & Ivanov, 2020).

The authors argue that developments such as big data, microtargeting in marketing, and personalized algorithms bring both advantages and disadvantages for market participants and consumers. On the one hand, these technologies can help simplify consumer purchasing decisions, making them more practical and efficient. On the other hand, there is a risk that the consumer's autonomy to choose freely and make a free decision will be undermined. A more optimistic view is taken by Milgrom/Tadelis (2018), who, in their recently published work, examine the effects of AI on trading platforms such as eBay and Amazon (Sheıkh, 2022). The authors concluded that AI can be used to overcome computational barriers, increase the efficiency of search processes, and improve trust in markets. This, according to the authors, can make markets significantly more efficient and reduce transaction costs. The spread of AI is also accompanied by the idea of improving existing products and services and achieving efficiency gains in their production (Alpago, 2023).

Cockburn et al. (2017), however, are convinced that the impact of AI is even more profound because it enables a new method of innovation. AI has the potential to bring about a significant change in the way innovation takes place (Anderson & Luchsinger, 2018). The authors believe it is likely that the importance of traditional human research and development will decline in favor of the interplay of passively generated data sets and algorithms. At

the same time, this creates an economic incentive to acquire and control the largest possible amounts of data. The spread of AI not only impacts market structures, competition, and innovation, but also international economic relations and global trade (Alpago, 2024).

AI is the subject of regulatory issues in international agreements such as NAFTA or TPP-11, as well as structural policy attempts to secure or expand national locational advantages. Goldfarb/Trefler (2017) examine the international implications of AI and conclude that large knowledge-based economies benefit disproportionately from AI, with success largely dependent on the speed of local knowledge dissemination. In this context, Aghion et al. (2017) warn of a growing global divergence if the privileged use of AI by industrialized countries further increases the wealth gap with less developed countries (Peters, Jandrić & Means, A.J. (2019).

Furthermore, AI is being applied to varying degrees in almost every industry. In this case, data infrastructure plays a critical role in success. AI has led to a significant increase in the amount of data storage required by businesses globally. Estimates suggest that the amount of data worldwide will increase by another 122 percent by 2027. Just a year ago, companies expected data storage to double in two years (Kaya, 2022).

Conclusion

The topic of AI has entered the economic debate and is enjoying increasing popularity. This is demonstrated not only by the large number of recently published papers and studies, but above all by the struggle for the dominant interpretation in the scientific debate on artificial intelligence. It is precisely this characteristic as a still very young topic in economic research and the controversial nature of this debate that explains the large discrepancy in assessments and results. Nevertheless, some initial findings can be noted: First, AI and related technologies have the potential to significantly change economic structures. On the one hand, the use of AI in conjunction with further automation such as industrial robots will have negative effects on employment.

On the other hand, however, new, AI-based products, applications, and business models can provide growth and employment stimulus that can overcompensate for job losses in other areas. Second, in addition to the prominent effects of AI and automation on employment, economic growth, and productivity, there are several hidden impacts that should not be ignored.

Negative effects on income and wealth distribution, as well as on competition, cannot be ruled out. Both areas offer strong potential for (social) conflict and should therefore be increasingly the focus of the debate. Third, it seems sensible to mitigate potentially negative impacts early on through economic policy measures, without, however, limiting the development of AI itself. In this context, measures such as investments in education, the taxation of robots the strengthening of traditional social networks, or even the introduction of an unconditional basic income are being discussed.

References

Acemoglu, D. und Restrepo, P. (2017): Robots and Jobs: Evidence from US

Labor Markets. NBER Working Paper 23285.

Acemoglu, D. und Restrepo, P. (2018): Artificial Intelligence, Automation and Work. NBER

Working Paper 24196.

Alpago, H. (2018). Bitcoin'den Selfcoin'e Kripto Para. IBAD 3(2), 411-428.

Alpago, H. (2023), Yapay zekâ ve blok zinciri uygulamalarının dijital ödeme Sistemlerinde-kimuhasebe süreçlerine etkisi, Gazi Kitapevi, Ankara

Alpago, H. (2024), Robot X, KDY, İstanbul

Anderson, J., Rainie, L. & Luchsinger, A. (2018). Artificial Intelligence and the Future of

Humans, Pew Research Center, 1-120.

Kaya, S. N. (2022). Robotların Yükselişi: Yapay Zeka ve İşsiz Bir Gelecek Tehlikesi. Novus

Orbis: Siyaset Bilimi Ve Uluslararası İlişkiler Dergisi, 4(1), 115-119.

Peters, M.A., Jandrić, P. & Means, A.J. (2019). Introduction: Technological Unemployment

and the Future of Work. In: Peters M., Jandrić P., Means A. (eds) Education and Technological Unemployment. Springer.

Sheıkhı, M. (2022). Yapay Zekâ Kullanımının İş Piyasasına Etkisi. Journal of Economics and

Political Sciences, 2(1), 102-111.

Webster, C. & Ivanov, S. (2020). Robotics, Artificial Intelligence, and the Evolving Nature of

Work. In: George B., Paul J. (eds) Digital Transformation in Business and Society. Palgrave Macmillan,

Cham. Wirtz, B.W., Weyerer, J.C. & Geyer, C. (2019). Artificial Intelligence and the Public

Sector Applications and Challenges, International Journal of Public Administration, 42(7), 596615.

Zysman, J. & Kenney, M. (2018). The next phase in the digital revolution, Communications

of the ACM, 61(2), 54–63.

Web

https://www.imf.org/en/Home

https://ec.europa.eu/eurostat

https://www.pwc.com.tr/

https://www.ilo.org/